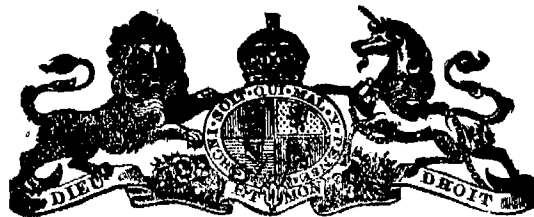


ASSESSMENT REPORT
OF THE
MARWAT TAHSIL
IN THE
BANNU DISTRICT,
NORTH-WEST FRONTIER PROVINCE.

BY
R. I. R. GLANCY, I.C.S.,
Settlement Officer.

Published by Authority.



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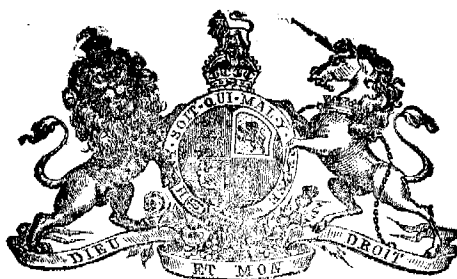
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No. 499 H.

FROM

MAJOR C. B. RAWLINSON, C.I.E.,

Offg. Revenue and Financial Secretary to the

Chief Commissioner, N.-W. F. Province,

TO

THE OFFG. REVENUE COMMISSIONER,

North-West Frontier Province.

Dated NATHIAGALL, the 28th September 1906.

SIR,

I am directed to acknowledge receipt of the Assessment Report of the Marwat Tahsil in the Bannu District and to convey the following orders and remarks of the Hon'ble the Chief Commissioner upon Mr. Glancy's proposals.

2. The proposals of the Settlement Officer have been reviewed by Mr. M. F. O'Dwyer, Revenue Commissioner, as far as the two unirrigated circles, the Shigga and the Gadwad, are concerned in a Note submitted with the report, and the remarks are confined to these two circles. The irrigated circles of Nar and Tandoba will be dealt with later when the scheme for improving and extending the Kurram irrigation has further advanced and when the Settlement Officer's proposals for the Bannu Tahsil are received.

3. The Revenue Commissioner has given a succinct account of the tract under consideration, of which the main facts actually bearing on the assessment are as follows.

Nearly the whole area is held in proprietary right by the Marwat tribe, but an unusually large percentage of the cultivated area is mortgaged; the mortgages, however, owing to the system of tenures described at length by the Settlement Officer in paragraph 30 of his report partake rather of the nature of reciprocal exchanges within the tribe, and, as pointed out by Mr. O'Dwyer, the Marwat zamindar's land is his first and his last security. The agricultural prosperity of the tract depends upon a scanty and uncertain rainfall, kharif crops being hardly grown at all except in parts of the Gadwad Circle, and the fluctuations both in the sown and the matured areas are as a natural consequence exceedingly wide. The Marwats are by circumstances poor cultivators, their agricultural stock is small, communications are backward and markets are still at a distance: and the people possess practically no miscellaneous sources of income. At the same time the sandy lands of Marwat yield a surplus production of grain for export, and there has been a general rise of 59 per cent. in prices all round since last Settlement. Ordinary rent rates are extremely high, as a general rule one-half the gross produce, but this is mainly due to the minimum of labour involved in cultivation and the low pressure of population upon the soil, and the facts that the proprietors depend almost entirely upon their crops, while the tenants who are curiously averse to migrating must either accept their landlords' terms or starve, largely contribute to this factor. The cultivated areas in both circles have increased since last Settlement by 51·5 per cent. in the Shigga Circle and by 35·6 per cent. in the Gadwad Circle, but the newly broken up land is of inferior quality, and in the former circle the increase is chiefly confined to Eastern Marwat trans-Kurram, or as it is generally called the Thal, where the agricultural conditions are still most unsettled.

Population has increased by 18 per cent. in the Shigga and by 5 per cent. in the Gadwad Circle during the last ten years, but the pressure per square mile of cultivation is extremely low, being only 136 in the former and 186 in the latter circle, as against the Punjab Provincial average of 492.

Thus it may be said that the rise in prices is the all predominant ground for an enhancement of the previous assessment, and, as pointed out by the Settle-

ment Officer, the special circumstances of the tract demand lenient treatment ; it is obviously impossible for Government to take anything closely approaching the full half net assets in either circle.

4. The Revenue Commissioner in paragraph 13 of his Review has compared the total demand and the incidence per cultivated acre of the various former assessments and has called attention to the progressive leniency of the Government demand ; but the assessments of both the Summary Settlements were admittedly heavier than the tract could sustain, and Mr. Thorburn's assessment would undoubtedly have broken down in these two circles but for the general rise in prices : even with this rise remissions were necessitated upon a large scale during the earlier years of that Settlement and large suspensions were granted during the later years, especially in the Gadwad Circle which the Settlement Officer has clearly shown to have been considerably over-assessed. In fixing the new assessments, therefore, it is necessary to bear the above facts clearly in mind and to look to the present capacities and conditions of the tract rather than to statistical comparisons with former Settlements.

5. As regards the form which the assessment should assume the Chief Commissioner accepts the views of the Revenue Commissioner and the Settlement Officer, which not only conform to the strongly expressed wishes of the people concerned, but also sufficiently fulfil the requirements of the two circles. In the Shigga Circle there are no good reasons to anticipate that a fixed assessment will break down : it is peculiarly secure for a barani tract and any relief which may be necessitated in bad years can be afforded by liberal suspensions : should the fixed assessment break down, the alternative fluctuating assessment can at any time be readily substituted. The Gadwad Circle is less secure, and but for the wishes of the inhabitants it would perhaps have been advisable to adopt a fluctuating assessment from the outset. The Settlement Officer, however, has proposed to offer each village in this circle the choice between a fixed and a fluctuating assessment, anticipating a general acceptance of the former, and in the event of the fixed assessment breaking down to substitute fluctuating rates without further hesitation. To these proposals the Chief Commissioner agrees. But it must be understood that when once a fluctuating assessment has been introduced in any village no reversion to a fixed assessment will be permitted during the term of Settlement.

6. The Settlement Officer has proposed the following fixed assessment :—

					Rs.
Shigga Circle	...	...	...	...	95,000
Gadwad Circle	...	...	...	...	45,000

giving for the Shigga an enhancement of 60 per cent. and representing 67 per cent. of the reduced half net assets, and for the Gadwad involving an enhancement of 25 per cent. and representing 66 per cent. of the half net assets. The incidences derived from these figures are as follows :—

					Per acre cultivated.	Per acre sown.	Per acre harvested.
Shigga	...	...	...	...	8½ annas	6½ annas	12½ annas
Gadwad	...	...	...	...	7½ „	11 „	Re. 1

These assessments have been recommended for acceptance by the Revenue Commissioner as moderate, but not over-lenient. But having regard to what has been said above the Chief Commissioner is inclined to the opinion that these assessments are somewhat higher than the circumstances of the people and the tract justify. In the case of the Shigga Circle the limit of cultivation has already been reached in the old established villages to the south which were fully assessed at last Settlement, the inhabitants derive no outside income whatever from industries, grazing or by-products, and the enhancement will fall mainly upon the Thal villages where the agricultural conditions are still backward and the soil is of inferior quality. Moreover, in both circles the people suffer seriously from the want of drinking water and for three-quarters of the year they are compelled to bring water on donkeys from distances varying from one to fifteen miles : the increase

in population has necessitated the upkeep of a larger number of donkeys for this purpose, and this same want of water drives the people to sell their plough cattle year by year after the rabi sowings are completed and to repurchase them at higher figures in the autumn. Again, in the Gadwad Circle consumption exceeds the production, cultivation is more precarious than elsewhere in Marwat with the exception of the best rodkahi villages, the circle was greatly over-assessed at last Settlement, and during the past ten years suspensions of revenue have steadily increased. The rates upon Shigga Khatina and the stiff soils at last Settlement are now proved to have been unduly high, and the increase in cultivation has taken place upon land of a lighter and an inferior character to that formerly under cultivation. Further, in contrast to their neighbours the Khattaks of Teri in the Kohat District, where agricultural conditions are somewhat similar, the Marwats depend entirely upon their grain for their very existence; having no class companies in the Regular Native Army, they do not enlist, they derive no income from service pensions, salt inams, the sale of fuel and fodder, etc., and there are thus strong reasons for dealing leniently with both circles. The Chief Commissioner would accordingly limit the fixed assessment in the Shigga Circle to Rs. 90,000 and that of the Gadwad Circle to Rs. 42,000, a total of Rs. 1,32,000. In the former circle this gives an enhancement of $51\frac{1}{2}$ per cent. over the present demand and represents 63.8 per cent. of the reduced half net assets, and in the latter the enhancement amounts to $16\frac{1}{2}$ per cent. and represents 61 per cent. of the half net assets.

7. The following tables give the revised crop and soil rates as reduced for each circle in view of the above reductions in the fixed assessments :—

CROP RATES.

Soil.	Shigga Circle.	Gadwad Circle.
	Rs. a. p.	Rs. a. p.
Rodkahi	0 11 5	1 3 6
Barani	0 11 3	0 12 10
Shigga Khatina	0 14 8	1 0 6
Shigga	0 11 9	0 13 5

SOIL RATES.

Soil.	Shigga Circle.	Gadwad Circle.
	Rs. a. p.	Rs. a. p.
Rodkahi	0 6 0	0 9 0
Barani	0 4 0	0 4 0
Shigga Khatina	0 11 0	0 10 0
Shigga	0 7 9	0 7 6

The reductions mainly affect the Shigga and the Shigga Khatina soils.

As regards the reductions in the Settlement Officer's fluctuating rates necessitated by the above orders, the Settlement Officer is directed to revise his rates, so as to bring out amounts between 18 and 20 per cent. above the fixed assessments given in paragraph 6 above.

8. The Revenue Commissioner's proposals contained in paragraphs 20 and 21 of his Review as to deferment of a part of the new assessment in the Thal villages where the enhancement will amount to something like 300 per cent. and in all cases where the new demand under the fixed assessment exceeds the old by more than 66 or 100 per cent., or where in the case of fluctuating rates the enhancements will be too sudden, are approved and sanctioned.

The proposal to rectify the mistaken amalgamation of the old Pakka and Gadwad Circles should be given effect to by the Settlement Officer.

The cesses will be levied at the rate of Rs. 13-5-4 per cent., or $2\frac{3}{16}$ per rupee.

As proposed by the Settlement Officer there will in future only be one instalment for the kharif harvest, namely, January 15th, and the rabi instalments will be the same as before, July 1st and August 1st.

The current assessment expires with the rabi of 1907, and the new assessment of these two circles will therefore come into force from the kharif of 1907 and will be announced provisionally for 20 years.

I have the honour to be,

Sir,

Your most obedient servant,

C. B. RAWLINSON, MAJOR,

*Revenue and Financial Secretary to the
Chief Commr., N.-W. F. Province.*



**REVIEW OF THE MARWAT ASSESSMENT, REPORT BY MR. M. F.
O'DWYER, REVENUE COMMISSIONER, NORTH-WEST
FRONTIER PROVINCE.**

In Bannu as in Hazara the Regular Settlement was sanctioned for a period of 30 years. The term in Bannu expires with the Rabi harvest of 1907.

The Settlement operations were undertaken in October 1903, and as the problems of irrigation and assessment in Marwat are less complicated than in Bannu it was decided to take up that tahsil first. The survey was completed in the hot weather of 1905, and Mr. Glancy submitted his Assessment Report towards the close of the year. Meantime an Irrigation Engineer has been put on special duty to report on the possibility of improving the system of Kurram irrigation and of extending it to the *bārāni* tracts of Marwat. Detailed proposals are now being worked out, and as the orders passed on those proposals will effect the existing system of assessment in the Bannu Tahsil and in the two irrigated circles—Nar and Tandoba—of the Marwat Tahsil it is advisable to defer passing orders on those circles till the future position has been more clearly defined, and the assessment of irrigation in the Bannu District can be dealt with as a whole.

There is no reason, however, for withholding orders in regard to the assessment of the two unirrigated circles of Marwat, Shigga and Gadwad, and thus enabling the Settlement Officer to complete the operations in these circles and devote the rest of his time to the very intricate irrigation questions that await decision on the rest of the district.

2. The tract now under consideration is peculiarly the home of the Marwats and is owned almost exclusively by members of that tribe. There is a very slight sprinkling of Awans, Musalman Jats, Sheikhs and Sayads, who have acquired small areas by gift, purchase or ancient possession, and of Hindu money-lenders and traders who have purchased about 1·4 per cent. of the area. But over 90 per cent. of the area is held in proprietary rights by Marwat Pathans, and though alienations—at least by mortgage—are extraordinarily common, those are mainly within the tribe, which as a result partly of character and partly of its remote situation and distance from large towns has maintained its simple traditions and retained its possessions with an extraordinary tenacity.

3. The tract is entirely dependent on a scanty rainfall averaging only 13·18 and often falling short of ten inches. But—except in the northern portion, i.e., the old Pakka Circle now included in Gadwad, where the land is often a stiffish clay or loam built up like the Daman of Dera Ismail Khan by the deposits of the hill-torrents—the soil though extremely light on the surface has a good sub-stratum, and is in consequence cool, easily worked, retentive of moisture and able to withstand prolonged drought to an extent that has to be seen in order to be believed. The monsoon and autumn rains are light and very uncertain; so that kharif crops are hardly grown at all in the Shigga Circle—only 5 per cent.—and in the Gadwad where they amount to 20 per cent. of the total, they are mainly confined to the *rodkoki* land which receives the spill from the many hill-torrents after rain has fallen on the surrounding hills.

4. The winter and spring rains—from the middle of December to the end of March—though light are fairly certain, and as sowings can be carried on till the middle of January, it is, as pointed out in paragraphs 33 and 34 of the report, very rare for the lighter soils—Shigga and Shigga-Khatina—to be left unsown. Those two soils occupy 94 per cent. of the whole in the Shigga Circle, but only 40 per cent. in Gadwad, and this is the cardinal fact which dominates the agricultural conditions of the two circles.

The Gadwad with 27 per cent. of the cultivation returned as *rodkoki* or dependent on hill-torrents, and 33 per cent. of rather stiff high-lying *bārāni* requires a heavier and more continuous rainfall than the light Shigga soils, and, although given those favourable conditions, the yield is greater, the crops in an ordinary year are much less secure.

5. Thus taking the average of the six years ending 1904-05 it appears that in the Shigga Circle 89 per cent. of the cultivated area was sown, and of the sown area 26 per cent. failed, so that 100 acres of cultivation yield 66 acres of crops; in the same period only 69 per cent. of the cultivated area was sown in Gadwad, and the proportion of failure was 32 per cent., so that 100 acres of cultivation yielded only 47 acres of harvested crops.

Similarly the fluctuations in the area matured, though very great in both circles, are wider in the Gadwad. Taking the average matured area of the last six years as the normal or 100, we find that in the disastrous year 1901-02, the area matured was in Shigga 54 and in Gadwad 42 per cent. of the normal, and in the bumper year 1903-04, the figures rose to 133 in Shigga and 145 in Gadwad.

6. Those extraordinary fluctuations furnish a powerful argument in favour of a fluctuating assessment, but they also clearly establish Mr. Glancy's argument (paragraphs 15 and 16, Report) that the mistake—a common one at the time and one which it has taken years of experience to correct—was made at last Settlement of regarding the stiffer soils as superior to the lighter, and assessing them accordingly.

The stiff soils on which the crops are most precarious predominate in the old Pakka Circle, now amalgamated with the Gadwad. On the information now before us it is clear that a mistake was made in clubbing those two circles, and as they will probably require different treatment hereafter, the Settlement Officer should arrange to restore the *status quo ante* with effect from the new assessment.

The amalgamation of the Shigga and Shigga-Khatina circles—now known as the Shigga—is not open to objection, for, as the Settlement Officer points out, the soil classification, which in this case is well marked, takes sufficient account of all differences.

7. Orders have been separately passed on the preliminary report in regard to assessment circles, soils and prices by the Revenue Commissioner who has toured through the Marwat Tahsil every harvest since Rabi 1902, and with whom Mr. Glancy has frequently discussed most of the proposals now put forward.

8. The tract produces a very large surplus of food grains for export and the question of prices is, therefore, one of considerable importance. The crops to be considered and their proportion to the total matured area are—

	Wheat.	Gram.	Bajra.	Total.
Shigga	48.4	44.8	2.7	95.9
Gadwad	45.3	31.7	12.4	89.4

The prices in annas per maund assumed at last Settlement and now are—

	Wheat.	Gram.	Bajra.
Last Settlement	16 annas	12 annas	13 annas
Now	26	19	24
Percentage of increase	+62 per cent.	58 per cent.	85 per cent.

The Settlement Officer is therefore more than justified in assuming an all-round enhancement of 59 per cent.

The rates assumed by Mr. Thorburn were, as pointed out at the time, very lenient as compared with the actuals of the previous 20 years, but such leniency was necessary when Bannu was 160 miles from the nearest railway or metalled road and its only communication with outer markets was by Isa Khel and the Indus. The approach of the railway on three sides to within a distance of

80 to 100 miles and the linking up with Kohat, Dera Ismail Khan—both of which districts produce less than they consume, and with the Tochi Valley by metalled roads have given ready access to the outer world, and agents from the great exporting firms now regularly appear at the rabi harvest. It may, therefore, be confidently assumed that the prices obtained by agriculturists for their grain will not during the term of the new Settlement fall below the rates now sanctioned for any length of time.

9. The system of agriculture pursued in Marwat is from the necessities of the case extremely simple, but it is probably as effective as circumstances allow. The nitrogenization of the soil by alternating a leguminous crop (gram) with wheat is well understood in practice if not in theory. Manuring is unknown (except in small patches close to village sites), for cattle are few, and in the Shigga Circle where wood is scarce the droppings are used for fuel. The rotation above referred to enables spring crops to be sown with unvarying regularity on the light soils, and the frequent fallows and failures resulting from the scanty rainfall afford a natural safeguard against over-cropping.

10. Mr. Glancy in paragraphs 39—41 of his report has given good reasons for the rates of yield assumed. Considering the large allowance for failure those rates are moderate, but on the whole not over-lenient.

The all-round outturn of wheat in the Shigga Circle per matured acre comes to 4 maunds 5 seers, and in Gadwad (where the large area of *rodkoh* raises the figures) to 5 maunds 10 seers. Similarly the average yield of gram is 5 maunds in the Shigga Circle, 5 maunds 18 seers in Gadwad, and of *bajra* 4½ maunds in Gadwad. It is not improbable that the rates assumed are relatively lower in Gadwad than in Shigga. The precarious nature of the Gadwad cultivation has been amply discounted in the large allowance for fallow and failed areas, but the yield—when the crops do mature—is probably higher than on soils of the same class in the Shigga. It would have been interesting and useful had Mr. Glancy endeavoured to compare his outturns with those of Mr. Thorburn at last Settlement. In paragraph 39 it is assumed that owing to the difference of method such comparison is impossible. That however, is not quite correct. Thus in the produce estimate of the Shigga Circle Mr. Thorburn took the average yield of wheat at 106 seers per acre cultivated assuming that all the cultivation was cropped annually and allowing for failure by reducing the outturn. If we apply to Mr. Thorburn's figure, the two facts now ascertained, *viz.*, that only 89 per cent. of the cultivated area is sown in that circle and that 26 per cent. of the sown area fails, we find that his figure works out to 161 seers per matured acre which is practically the same as Mr. Glancy's 165 seers.

11. The high rent rates in Marwat have been a frequent subject of comment. Mr. Thorburn attributed them to the severity of the summary assessments. He wrote: "On the whole the prevalent rent rates ($\frac{1}{2}$ and $\frac{7}{16}$ in these circles) are very high and leave the tenant just enough to exist upon. The proprietor must impose the highest possible rent as otherwise he would be unable to pay his share of revenue and live, and the tenant has to accept the landlord's terms or abandon his native land which Marwatis only do under the direst necessity."

The Settlement Commissioner, Mr. Lyall, while subscribing to that view further held that the little labour involved in the cultivation in all parts of the tahsil and in the light sandy soil of the three southern circles in particular was a main cause of the high rates. He added words of caution which are as applicable now as then. "The rent rates are nearer rack-rents than they are in most countries and at the same time the cultivation is mainly by the proprietors. The rent rates therefore, give practically a higher standard entirely upon their crops than those of other countries; they have no appreciable produce or profits from cattle or live-stock to fall back upon. In fact in the three southern circles they have to import their plough cattle."

Those facts still exist and now, as then, not only account for the high rent rates, but also furnish reasons why they should not be blindly followed in working out the assessment for a community of small self-cultivating proprietors.

12. The owners' share of the produce as now calculated by Mr. Glancy—42 per cent.—is lower than the $\frac{1}{3}$ and $\frac{7}{16}$ assumed by Mr. Thorburn and deducting 9 per cent. for menials' dues the owners' share of the gross produce comes to 38.2 per cent. and the half net assets or State share to 19.1 per cent. Among a people who have few or no miscellaneous sources of income from the land or from service, and who in fact have "to purchase the clothes they wear, the *ghi* they eat, the oil they burn, the oxen with which they plough", who in addition have to maintain at considerable cost great numbers of donkeys to fetch drinking water, and who are subject to great vicissitudes of harvests, involving in many cases enormous loss of seed grain, it would obviously be impossible in practice, however justifiable in theory, to take anything approaching 19.1 per cent. or practically one-fifth of the gross produce.

13. A reference to the fiscal history of the tract will throw some light on the discussion of the question, how far the State should forego the half assets. Mr. Glancy has clearly summarized the past revenue history of the tahsil as a whole in Part II of his report and it may be accepted that up to the Regular Settlement of Mr. Thorburn the assessment which was supposed to represent one-fourth of the gross produce was very severe, and that Mr. Thorburn's assessment, though it eased off the burden, was a fairly full one at the time—especially in the old Pakka Circle—for an isolated frontier tract. For the two circles now being dealt with the following table shows the total demand and the incidence per cultivated acre of the various assessments:—

	Summary 1st (1852).			Settlement 2nd (1857).			Regular Settlement 1877.			1904-05.		
	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.
Shigga... .. {	68,183	0	0	67,035	0	0	59,070	0	0	59,334	0	0
	1	4	0	0	11	9	0	7	10	0	5	2
Gadwad {	32,175	0	0	38,808	0	0	35,995	0	0	35,961	0	0
	1	4	6	0	11	6	0	7	11	0	5	10
Total ... {	1,00,358	0	0	1,05,843	0	0	95,065	0	0	95,295	0	0
	1	4	4	0	11	8	0	7	9	0	5	4

The figures are significant as indicating the progressive leniency in fixing the State demand. Mr. Thorburn's rate per cultivated acre was under 8 annas, while if the rough data of the 1st Summary Settlement in 1852-53 are to be relied upon, the rate was then over Re. 1-4-0 per acre. Mr. Thorburn's lenient rates have been further lightened by the great expansion of cultivation (51.5 per cent. in the Shigga Circle and 35.6 per cent. in Gadwad) that has taken place within the last 30 years. Since the first Summary Settlement was made in 1852, the area under cultivation has probably trebled and prices have certainly doubled, but the State demand is now 5 per cent. less than then; and while in 1852 it was supposed to represent one-fourth of the produce and probably represented a higher fraction, it is now less than one-twelfth.

14. A curious fact is that while the revenue demand has been steadily reduced by more moderate assessments and the expansion of cultivation, the alienation of the land by sale and mortgage has been as steadily increasing.

At last Settlement in the Shigga Circle 42,000 cultivated acres or 34 per cent. of the whole were under mortgage. The area has since risen to 70,000 acres, or 38 per cent. of the present cultivation, and the mortgage debt is now 20 lakhs of rupees, representing 34 times the revenue demand of the circle and 81 times the revenue of the area mortgagad. Similarly in the Gadwad Circle the cultivated area under mortgage has risen from 30,000 acres or 41.5 per cent.

of the total at last Settlement, to 45,000 acres, or 45·5 per cent. of the present cultivation, and the mortgage debt is Rs. 12,71,000, equal to 35 times the total land-revenue of the circle and 82 times the revenue of the mortgaged area.

A mortgage debt of 33 lakhs in two circles paying less than a lakh of rupees as land-revenue is enormous, and the fact appears to require more explanation than the Settlement Officer has afforded in paragraph 32 of his report. Mr. Glancy says that the figures indicate poverty and indebtedness and that the indebtedness is due partly to marriage expenses, litigation and extravagance, but mainly to the uncertainty of the harvests, especially in the Gadwad Circle and the absolute dependence of the zamindars on their crops.

15. Those explanations are plausible enough but they do not appear to go to the root of the matter.

If the returns from the land are so uncertain, how is it that land can be mortgaged for over 80 times the revenue demand, that it sold during the last 7 years (Statement V) for 112 times the land-revenue in the Shigga Circle and 178 times the land-revenue in the Gadwad—a fact by the way which militates against the theory that Gadwad is more highly assessed than Shigga—and how is it that in both circles over 70 per cent. of the area has been mortgaged for over 22½ lakhs to the very agriculturists, who are themselves dependent solely on the produce of this same precarious agriculture? It is probable that a more detailed examination would show that one main cause for the extraordinary prevalence of mortgages is to be found in the system of tenures described in paragraph 30. Under that system the lands of an individual owner are often scattered over several estates widely apart from one another, and for convenience of cultivation and concentration of agriculture a system of reciprocal mortgages has sprung up. No other assumption explains how a body of petty proprietors supposed to be living from hand to mouth could find a capital of over 22 lakhs of rupees to invest in mortgages. The fact is that mortgages take the place of temporary exchanges because they are regarded as safer.

The statistics of sales support the above argument. If there were such general indebtedness we should expect to find land permanently passing into the hands of the only class with considerable capital—the Hindu money-lender. But in the Shigga Circle, where 9·3 per cent. of the cultivated area has been sold within the last 30 years, money-lenders have purchased (paragraph 53, report) only one-sixth, and in Gadwad of 9·9 per cent. sold they have acquired only one-ninth.

16. Another cause of the prevalence of mortgages is the fact that to the Marwat the land represents the only asset on which he can raise money. In districts like Hazara, where the zamindar has large areas of valuable waste enabling him to maintain many cattle and to supplement his agriculture by sales of wool, ghi, wood, grass, etc., he can raise money without pledging his land, and the floating debt is consequently very great; in Marwat the land is his first and last security, so that there is probably little debt unsecured by mortgage. A similar state of things was observed in the adjoining Tochi Valley, where though the assessment was only nominal and agriculture is fully secured by irrigation, the people had within the 10 years between our occupation in 1894 and the Settlement of 1904 mortgaged 16 per cent. of the cultivated area.

17. The above remarks clear the way for the consideration of the assessment to be imposed. It has been seen that since the last Settlement 30 years ago prices have risen by at least 59 per cent, the area under cultivation has increased by 61,500 acres or 51·5 per cent. in Shigga and by 26,000 acres or 36 per cent. in Gadwad. Population has increased in a slightly greater proportion, but does not press heavily on the soil, and in the Shigga Circle certainly there is a large surplus produce of food grains. On the other hand the limit of expansion has now been almost reached, the tract is liable to great vicissitudes of season, and the level of prosperity at least in part of the Gadwad Circle is low.

18. The first question is what form the assessment should take. The arguments for and against a fluctuating assessment could not be more lucidly summed up than in paragraph 52 of the report. The people, who in years of

stress such as 1901-02 were inclined towards a fluctuating assessment, encouraged by three subsequent good rabi harvests have now altered their minds, and partly to avoid the higher demand which a fluctuating system would probably bring out, but chiefly from fear of the possible harassment and extortion by revenue subordinates to which they anticipate the system would subject them, they are now to a man opposed to it.

Mr. Glancy proves that with an elastic system of suspensions and remissions such as is now accepted as an axiom of our revenue policy a reasonable fixed assessment can easily be worked in the Shigga Circle and in the old Gadwad Circle. In that portion of the Gadwad which represents the old Pakka Circle a fluctuating system such as has been introduced in the similar and adjoining Tank Tahsil would certainly be more suitable, but in view of the strong opposition of the people he hesitates to force it upon them. His proposals on the subject may be summed up as follows :—

He has framed fixed and fluctuating rates of assessment, but he explains : “ In the Shigga Circle the fluctuating rate are not be introduced unless the fixed assessment breaks do. In the Gadwad Circle I propose in announcing the assessments to offer each village the alternative of a fluctuating system ; and later on should there be any difficulty in realizing the fixed assessment or (should) the people demand the change, there should be no hesitation in substituting the fluctuating rates for the fixed assessment.”

Those proposals may well be accepted.

19. The fixed assessment proposed by the Settlement Officer is in Shigga Rs. 95,000, in Gadwad Rs. 45,000, total Rs. 1,40,000. In the Shigga it would give an enhancement of 60 per cent. and represent 67 per cent. of the half-net assets (including straw and other crops which have no selling value) 60 per cent. of the half assets excluding those products, and between one-eighth and one-ninth of the gross produce. The incidence would be $8\frac{1}{2}$ annas per acre cultivated, $9\frac{1}{2}$ annas per acre sown and $12\frac{2}{3}$ annas per acre of crops harvested. In the Gadwad his proposed assessment yields an enhancement of 25 per cent. on the present demand and represent 66 per cent. of the net-assets and one-eighth of the gross produce. It would give an incidence of $7\frac{1}{2}$ annas per acre cultivated, 11 annas per acre sown and Re. 1 per acre harvested.

The proposals have been made after full discussion with the Revenue Commissioner ; they are certainly moderate, but having regard to all the circumstances of the tract and the standard of assessment adopted in adjoining districts they are not over lenient. They may therefore be safely accepted and the soil rates proposed in paragraphs 54 and 55 sanctioned.

20. The enhancement will be greatest in the Thal villages of the Shigga Circle (paragraph 60, report), and in accordance with the liberal policy of deferred assessments now sanctioned by Government the Settlement Officer should be authorised in that tract, having announced and distributed the final demand, to give a temporary remission of 8 annas per rupee for the first three years and of four annas per rupee from the fourth to the seventh year inclusive.

In other cases where the new demand exceeds the old by more than 66 per cent. one-third of the excess should be deferred for five years and where the excess is more than 100 per cent. one-half of the enhancement should be similarly deferred.

21. The rates on harvested crops proposed for the alternative fluctuating system of assessment are clearly explained in paragraphs 54 and 55. They are as follows :—

			Per acre,		
			Rs. a. p.		
Shigga.	All kharif and zaid rabi crops	...	...	0	8 0
Rabi Crops	{ 1st class villages	...	...	1	2 0
	{ 2nd class villages	...	...	0	12 0
Gadwad.	All kharif crops	...	...	0	12 0
Rabi	{ Rod kahi	...	...	2	0 0
	{ Other	...	...	1	2 0

These rates if applied to the cropped areas of the last 6 years would yield a demand of Rs. 1,14,436 or $15\frac{1}{2}$ annas per harvested acre in the Shigga

and of Rs. 53,049 or Rs. 1-3-0 per harvested acre in the Gadwad. In both cases the results of the fluctuating system would be 18 to 20 per cent. above the fixed demand, and this excess correctly represents what the difference should be between a fixed and fluctuating demand. The rates may therefore be approved with the proviso that if with the further experience he has now gained the Settlement Officer sees any reason to propose a modification he is at liberty to do so as long as the final result remains practically the same.

Where the application of the full fluctuating rates would result in great and sudden enhancements the Settlement Officer should be given discretion to give temporary remissions on the same lines as in the last paragraph. The basis of the calculation will be a comparison between the former demand and what the new demand would be if fixed.

22. As the patwar cess has been abolished the only cesses will in future be—

				Per cent.		
				Rs.	a.	p.
Local rate	8	5 4
Lambardari	5	0 0
Total				...	13	5 4

The dates proposed for revenue instalments, viz.—

Kharif	...	...	...	...	11th January
Rabi	...	...	...	...	{ 1st July
				...	{ 1st August

are suitable.

The new assessment will be introduced from the kharif of 1907 and may be announced provisionally for a term of 20 years.

23. Mr. Glancy's report is the first he has written and is a clear and creditable piece of work showing a sound knowledge of the tract and a deep and kindly interest in the people. The order of the subjects is now and again confusing, and the statistics in some cases might have been collated and marshalled with more skill. In particular a comparison might well have been made between the rates he proposes and those recently sanctioned for similar tracts in adjoining districts. These omissions however are matters of detail, which are common in an officer's first Assessment Report; they do not affect the character of the proposals which are well considered, well expressed and command confidence.

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ASSESSMENT REPORT

OF THE

MARWAT TAHSIL

IN THE

BANNU DISTRICT.

PART I.—PHYSICAL CHARACTERISTICS.

THE Marwat Tahsil is the southern of the two tahsils now constituting the Bannu District. With the exception of the village of Pezu in the south-west and a narrow strip of land between the Paniala torrent and the Shekhubudin range in the south-east of the tahsil the whole of Marwat lies within the ring of hills which enclose the Bannu basin. To the north is the Bannu Tahsil, to the east a narrow strip of the Kohat District intervenes between Marwat and the Maidani range till the Mianwali District is reached. From this point the Isa Khel Tahsil of Mianwali marches with Marwat on the east, the boundary running along the low hills to Darra Tang and then following the Kurram to the southern limits of the district. To the south and south-west lies the Dera Ismail Khan District shut off from Marwat by the Shekhubudin and Bhitanni ranges. To the north-west is independent territory belonging to the Bhitannis, who graze their flocks on Gabar and the surrounding hills above the Marwat plain.

In 1875-1876 three Marwat villages lying to the west of the Bhitanni range—Mullazai, Garra Midad Khel and Bain—were transferred to the Dera Ismail Khan District. With this exception the boundaries have undergone no alteration since the last Settlement.

The area of the tahsil, according to the revenue survey, is 1,227 square miles. The area brought out by the measurements in this Settlement is 1,211 square miles. The difference can be partially explained by the fact that for political reasons no definite line has been fixed as the boundary of Western Marwat, and that the revenue survey went beyond the measurements of the last Settlement which have been followed in the new maps. In the same way the tahsil boundary line with Mianwali as shown in the revenue survey does not agree with the boundary line as shown in the old Settlement survey. Pending the remeasurement of the Isakhel Tahsil, I have followed the old Settlement boundary. The difference between the revenue survey and the present Settlement measurements is thus confined to the hills and does not affect the cultivated area.

2. The Marwat Tahsil is an open plain shut in on three sides by ranges of hills. Those are the Shekhubudin range to the south, the Maidani range to the east and the Bhitanni range to the west. Their average height is little more than 2,000 feet above the sea level, but on all three sides peaks rise to over 4,000 feet. These hills are composed of conglomerate and sandstone crumbling into the plain below. Mr. Thorburn once compared the view of the low hills on which one looks down from Shekhubudin to the fossil remains of some vast ante-diluvian monster; and no more graphic description of their barren scenery could be conceived.

The drainage of Marwat is carried by the Kurram and Gambila rivers, which issue from the Wazir hills and enter Marwat after traversing the Bannu Tahsil. The two rivers unite below Lakki, and pass through the gorge of Darra Tang into the Isakhel Tahsil of Mianwali. The Doab, between the Kurram and Gambila, is irrigated by canals, and forms with its trees and watercourses a striking contrast to the arid treeless plains between the rivers and the hills. Southern

and Eastern Marwat are made up of undulating downs of sand. Water is at a great distance from the surface, and during the eight or nine months that the village tanks are dry, drinking water has to be carried on donkeys to distances of from one to fifteen miles. To the north and west the soil gradually stiffens, and clay takes the place of sand. The drainage from the hills is carried to the rivers by torrents which have cut their beds 60 and 100 feet below the surface of the neighbouring country; and these occur at such regular intervals, as to call from Mr. Thorburn the remark that Marwat seemed to have been furrowed by some giant plough.

3. There is a rain-gauge at Lakki, the headquarters of the tahsil. The rainfall for the last thirty years is given in Appendix G. The following table exhibits the general results in an abbreviated form :—

Months.	Average.	Maximum	Minimum.
April to June	2.68	7.50	0.12
July to September	7.03	19.13	1.57
October to December	0.64	7.30	...
January to March... ..	2.83	6.60	0.10
Annual	13.18	23.79	6.90

At the Bannu rain-gauge, situated 35 miles to the north of Lakki, the figures recorded are—

	Average.	Maximum.	Minimum.
Annual	12.24	18.78	6.12

The average rainfall during the four periods taken above is 2.72, 5.59, .72 and 3.21 inches, respectively. The annual rainfall in the Bannu basin is thus between 12 and 13 inches, and the rainfall in the south and east of the district is slightly heavier than in the north and west. This is also the case in Marwat, a fact noticed by Mr. Thorburn in his assessment report. October, November and December are practically rainless; but the crops can survive these months without rain. In the sandy tract, where the soil is extremely retentive of moisture, the rain between July and September is almost invariably sufficient for rabi sowings. The critical time is from the end of December to the beginning of February. If the winter rains are good the crop is assured. Rain in March still further improves the outturn of wheat, and though it is said that this is injurious to the gram causing the plant to sprout too exuberantly and flower prematurely, I can only say that in both 1904 and 1905 there was heavy rain in March, and the gram crop was a good one in both years. In Northern and Western Marwat moderate and well distributed rain in the hills is of more benefit than a heavy storm, which brings down the hill torrents in such force as to carry away the embankments. But as a general rule the hill floods are insufficient and irregular. Failure of the crops on hill torrent lands is more common than on the sandy soil. On the pure barani clay soil failure of the crop is the rule rather than the exception.

Hail-storms are not uncommon, and do considerable damage in the spring. Fortunately they are very local in their action, and the area affected is generally limited.

4. The tahsil lies between 32° 15' and 32° 53' north latitude and between 70° 27' and 71° 19' east longitude. Lakki, almost in the centre of the tahsil, is 996 feet above sea-level. The hot weather lasts from the beginning of May till the end of September, when the days are extremely hot and a sand-storm blows nearly every evening. Within seven days in July 1905 there were 50 cases of heat stroke and 35 deaths in Lakki alone. The sandy soil cools rapidly and the nights are more tolerable. The winter is cold. In January there is always frost. In 1905 snow fell in Lakki, and Mr. Thorburn also records a snowfall in 1874.

Malarial fever is fairly common, and guineaworm is very rife, the result of drinking foul and stagnant water when the village tanks are running low. Cholera is occasionally imported from neighbouring districts, but is rare. On the whole the people are a fine, healthy race, comparing very favourably in physique with their Bannuchi neighbours.

5. The canals of the Bannu Tahsil are of considerable antiquity, but canal irrigation in Marwat is for the most part subsequent to the British occupation of the district. For assessment purposes it will be most convenient to describe the various systems by assessment circles.

Previous to annexation the tract now known as the Nar Circle was a scrub jungle uncultivated and the resort of robbers and thieves. In 1852-53 the Nar. Kachkot, one of the oldest Bannuchi canals, was extended into the Nar tract. Grants of water and land were made to deserving individuals, and at the time of the last Settlement 9,467 acres were under irrigation. In addition to the Nar branch of the Kachkot a few villages on the banks of the Kurram also get "chilma" or surplus water which drains away from the Bannu villages irrigated by the Baran branch of the Kachkot. This Baran must not be confused with the Baran nulla, which is a tributary of the Gambila river. The supply of "chilma" water is always uncertain, and in times of scarcity is entirely cut off. The main source of irrigation in this circle is therefore the Nar extension of the Kachkot. The distribution of water on this branch is by permanently open masonry outlet heads. The water is divided into shares which are called kanals, the original idea being that the grant of water was in proportion to the grant of land, and that one kanal of water would irrigate one kanal of land. As a matter of fact the efficiency of a kanal of water is well below this standard. The Marwat Tahsil was allotted 114,500 kanals of perennial water and 143,000 kanals of "afzud" water; and certain villages in the Tandoba Circle bordering on the Nar were also given shares in the above supply. Throughout the Nar there are separate outlet heads for perennial and "afzud" water. The perennial outlet heads are always open, the afzud only from 1st December to the end of June. The expression "afzud" has in fact nothing to do with surplus water, as the afzud channels are opened and shut on the above dates quite irrespective of the state of the supply in the Kachkot. Most villages have a fixed number of kanals of perennial water and a fixed number of afzud, but the tail villages get only afzud. Afzud water is not given for the kharif at all and only from 1st December for the rab, i. e., very late for sowings. Thus in the Nar Circle there is perennial water, "afzud water" and "chilma water" ranking in irrigating value in the order in which I have placed them.

At the last Settlement orders were passed with a view to making water and land inseparable properties and preventing the growth of a class of water lords, who would, as in the Bannu tahsil, sell, lease and mortgage their water in every direction to the confusion of the whole system of distribution. Since Settlement this principle has on more than one occasion been lost sight of, but I am taking steps to so arrange that when certain privileged grantees de cease there will be no water rights on the Marwat Extension of the Kachkot beyond the right to a definite number of kanals of water for the irrigation of a definite area of land.

The Kachkot is managed by the district irrigation establishment under the orders of the Deputy Commissioner. This establishment is paid partly from a canal cess and partly from fines. The arrangements for canal labour are that for every 1,000 kanals of water a "kasha" or labourer shall be supplied by the zemindars. Owing to certain exemptions the number of kashas is less than the figure represented by the above arrangement. The kashas do little but attend at the Kurram dam when repairs are necessary. For ordinary silt clearance the tenants are called out and a fine of four annas a head levied for non-attendance.

The only other point worthy of notice in this connection is the custom known as "ghuta." When the crops in Nar are in danger of failure the upper channels of the Kachkot are closed and the whole supply is allowed to come down to the Nar.

There are over 20 canals employed in the irrigation of the circle. It would be impossible within the limits of this report to describe them all in detail. I have therefore confined myself to a description of the six main systems. These are—

Tandoba Circle,

- (i). The tail of the Kachkot.
- (ii). The tail of the Landidak.
- (iii). The Lashti.
- (iv). The Zindai.
- (v). The lower Kurram canals.
- (vi). The private or Lohra or Baran canals.

(i). The Nar extension of the Kachkot was carried into the Tandoba Circle, but the Tandoba villages for the most part have only "afzud" water; and the crops under Kachkot irrigation in this circle are therefore on the whole inferior to those of the Nar.

(ii). The Landidak is a Bannu canal under Government management and irrigates a few acres in the strip of land between the Gambila and Baran. The Marwats get only what water is left by the Bannuchis and the crops raised on these lands are very similar to those on the tail of the Kachkot.

(iii). The Lashti irrigates the same strip of land as the Landidak, but a much larger area. This canal takes out of springs in the bed of the Tochi or Gambila at Haved. The water is sweet, the supply ample and the land under irrigation fertile. The crops irrigated by this canal are much superior to those under the Kachkot or Landidak.

(iv). The Zindai irrigates a small area on the left bank of the Gambila. It is dependent for its water supply on springs fed by the rainfall in the Mahsud hills. The supply is often deficient and the crops are generally inferior.

(v). The lower Kurram canals irrigate the Michenkhel villages on the left and Paharkhel and Ihsanpur on the right bank of the river. They take out of the Kurram below the influx of the Kashu nulla. The Kashu has its origin in the salt hills of Kohat and when in flood brings down with it heavy saline deposits which render the Kurram water brackish and injurious to the soil. Land under irrigation from this source gradually deteriorates and after a time has to be abandoned. Generally the upper canals draw off most of the brine and the lower canals are somewhat better off. At present the upper canal on the left bank has been abandoned and much land has gone out of cultivation on the right. Owing to the fact that more Kurram water is drawn off in the Bannu Tahsil than formerly, the influence of the Kashu is more marked than it was and the future of this tract is anything but assured.

(vi). The tract of Marwat lying to the west of the Kurram-Gambila watershed is irrigated by two private canals, and these have now been extended across the watershed into the south of the Doab. At the last Settlement the oldest of these canals, the Ghulam Muhammad Khan Canal, was a very small affair, and the other, the Dauran Khan Canal, had not been thought of. They now run side by side for 14 miles and irrigate an area of 13,000 acres. Both canals take out of the tributary of the Gambila, known as the Lohra or Baran. When the Baran issues from the hills there is little or no water in the nulla, but springs occur all along its course, and much of the water lost by absorption in the Kachkot, which is carried parallel with it at a higher level, crops out again in the low bed of the Baran. The private canals are further fed all along their course by wilful and accidental contributions from the Kachkot. The water of the private canals is not so sweet as the Kachkot, but sweeter than the Kurram canals taking out below the Kashu. Water-logging and out-crops of kallar are fairly common in villages irrigated from this source, but on the whole the crops grown in this tract are the best in Marwat.

The Kachkot and the Landidak are managed by the Deputy Commissioner, the private canals by their owners, and the remaining canals by the irrigators.

Mr. J. G. Davis, Executive Engineer, has this year submitted a report on the Bannu canals in which he proposes to remodel the whole system and extend canal irrigation to Western and Southern Marwat. For details of these proposals

Possible changes in the system of irrigation.

the printed report may be consulted. It is sufficient to say here that the possibility of canal extensions and improvements in the system of distribution has been taken into account in the assessments.

6. There are two private mills in the Tandoba Circle and one mill belonging to Government. In the Nar Circle there is one private mill. There were no mill assessments in Marwat at the last Settlement.

7. There are five wells in the Marwat Tahsil used for irrigation and eight *jhallars* on the banks of the Gambila. These irrigate only 4 or 5 acres each, chiefly vegetables for the Lakki market. The well irrigated area is so insignificant that for circle rate purposes I have classed *chahi* as *nahri*. Allowance will be made in the village assessments for the peculiar circumstances of each well.

8. Marwat, outside the Kurram Gambila Doab, is traversed by hill torrents; but once they reach the Marwat plain their beds sink so far below the level of the surrounding country that irrigation is only possible when the water can be diverted at the base of the hills. At this point little can be done in the Shiga Circle, where there is nothing but sand to form a dam. It is only in Western Marwat that hill torrent irrigation is of importance. Of the torrents which issue from the Bhitanni range the most important are the Nugram and Kharoba. The system of irrigation is that known as "*Saroba parina*," the upper-lying lands taking as much as they can and the lower getting what remains. Quarrels as to the distribution of water are not very frequent. A *darogha* is maintained to supervise the labour on the dams and to maintain a list of absentees, whose fines are credited to the district canal fund. The local factions are a bar to effective co-operation, and it has thus been necessary for Government to take over the management of one hill torrent after another if only to prevent land going out of cultivation.

9. The arrangement of assessment circles was sanctioned by the Revenue Commissioner, North-West Frontier Province, in his No. 9-H., dated 6th June 1905. In the previous Settlement the tahsil was divided into six circles for assessment purposes. The number has now been reduced to four.

The Shiga Circle is made up of the old Shiga and Shiga Khatina Circles and includes the sandy downs of Southern and Eastern Marwat. The main characteristics as regards soils, climate and methods of cultivation are the same throughout the circle, and the only difference between Southern and Eastern Marwat from the point of view of assessment is that, while the villages of Southern Marwat have been long established and the limit of cultivation has been reached, Eastern Marwat or the Thal, as the trans Kurram portion of the tahsil is called, has only lately been brought under cultivation, large tracts of land are still unpartitioned, the property of one or more Marwat tribes, many owners have never seen their lands and the relations between landlord and tenant are unsatisfactory.

These matters are discussed in the later chapters, and it is hoped that this Settlement will leave the Marwat Thal in a more satisfactory state, but it will be some years yet before the Thal attains to the same fixity of conditions that prevails in Southern Marwat.

The Gadwad Circle is made up of the old Pakha and Gadwad Circles and includes all Western Marwat. In the south of the circle the soil is sandy and gradually stiffens as one goes north, but this difference is covered by the soil classifications and will give no trouble in assessment. The chief characteristic of this circle is the hill torrent irrigation.

The Tandoba Circle occupies the southern portion of the Kurram Gambila Doab with a narrow strip on the left bank of the Kurram and the right bank of the Gambila. This is a canal irrigated circle and is the least satisfactory of the four from the point of view of assessment. There are in all over twenty canals irrigating this tract, and these vary in value from the brackish canals taking out of the Kurram below the influx of the Kashu nulla to the sweet water canals taking out of the Baran and the Kachkot taking out of the Kurram above Bannu. It is

sufficient to say here that it was impossible to break up the circle on the bases of canal systems, as two or more systems are frequently employed in one and the same village. In one village five of the six systems described in paragraph 5 are brought under contribution.

The Nar Circle lies to the north of the Tandoba Circle. Along the Kurram banks runs a strip of indifferent sandy soil. Away from the Kurram the soil is a fairly stiff clay. The greater part of the circle is irrigated by the Kachkot Canal. The supply of water is somewhat deficient as the tract lies at the tail end of the canal. With the exception of a few old established Marwat villages on the banks of the Kurram the villages are owned by Government grantees. The circle is fairly homogeneous, as the systems of tenure and irrigation throughout the tract are practically the same.

10. The classification of soils adopted at the last Settlement divided canal irrigated lands into three classes:—

Soils.

- (1) Tandoba applied to first class lands.
- (2) Lissi applied to lands only receiving water for the spring crop.
- (3) Trikha applied to soils affected by saline efflorescence.

Tandoba and Lissi so overlap each other that it is impossible to retain them as soil classifications.

Irrigated land has now been divided into two classes, *nahri ekfasli* and *nahri dofasli*. Unirrigated soils were divided by Mr. Thorburn into (1) *barak* or *rodkahi*, (2) *dagar* or a stiff *barani* clay receiving the drainage of higher lying waste, (3) *shiga khatina*, (4) *shiga yaj*, (5) *shiga*—the three last sandy soils. These classifications have all been maintained with the exception of *shiga yaj*. It has been a difficult task to distinguish *shiga* from *shiga khatina*, and the differentiation of sandy soils into three classes was more than the Settlement staff could cope with in the time at their disposal.

The definitions of the various classes of soil adopted in this Settlement are—

1. *Nahri dofasli*.—
 2. *Nahri ekfasli*.—
 3. *Rodkahi*.—Embanked land irrigated from hill torrents,
 4. *Shiga*.—Sandy soil.
 5. *Shiga khatina*.—Sand and clay mixed,
 6. *Barani*.—Other unirrigated land.
 7. *Banjar jadid*.—
 8. *Banjar kadim*.—
 9. *Ghair mumkin*.—
- } Land irrigated from } Producing six crops or more
 } perennial canals. } in eight harvests.
 } Producing less than six crops.
- } As defined in the Patwari's Rules.

PART II.—FISCAL HISTORY.

11. The Marwats state that they first paid tribute in the reign of Bahadur Shah, son of the Emperor Aurangzeb.

Early history.

Be that as it may, it is certain that in Durani times they sometimes paid, as tribute or revenue, from Rs. 12,000 to Rs. 40,000, and that an army had generally to come to enforce payment. Between 1819 and 1836, the sum said to have been annually extracted from them by the Mankera Nawab or the Sikhs was from Rs. 30,000 to Rs. 40,000. In 1836 Maharaja Ranjit Singh formally annexed Marwat and farmed it to one Diwan Lakhi Mal for Rs. 40,000 a year. To him succeeded as revenue farmer the well known Malik Fateh Khan, Tewana, who in 1844 built a fort at old Lakki. In theory the farmer took a fixed share of the crop, but in practise he took all he could. Malik Fateh Khan made a sort of revenue settlement with the Tappa headmen by agreeing to take only one-sixth of the gross produce and "*roti*"—a small extra cess to defray the charges of hospitality. This extra cess was in fact a poll tax and brought in about Rs. 12,000 a year. The people rose against it. On Major Edwardes entering Marwat in the spring of 1847 he found the rebellion had just been quelled. He at once abolished the hated "*patkai*" as the poll tax was called and raised the Government share for all, but the Sayad and Ulama from one-sixth to one-fourth, an act which he says "was hailed as a perfect enfranchisement by the people."

12. For the next five years, 1848-49 to 1852-53, inclusive, Marwat was held under direct management, the Government share being the money

1843-1853.

value of one-fourth of the gross produce calculated by appraisement of the standing crops, but an abatement of one-third was made in favour of the Sayads and Ulama; and the village and tappa headmen received certain grain allowances as "*barats*." There are no trustworthy records extant to show what was the sum annually realized during this period, but Mr. Thorburn refers to a revenue note book, prepared by Pandit Hari Shankar, once Tahsildar of Marwat, when making the second summary Settlement in 1857-58. In it was a column showing the average *kham tahsil* collections from 1848-49 to 1851-52, inclusive, and putting them at the high figure of Rs. 1,33,818. The estimated area under cultivation was also shown at 92,577 acres. Mr. Thorburn believed that the above sum represented the full commuted value of one-fourth and one-sixth of the produce and not the net demand, *i. e.*, the amount actually credited to the State.

13. The first Summary Settlement was made by Major Nicholson.

First Summary Settlement.

The revenue rate adopted by him was one-fourth the supposed annual produce. The collections of the preceding four years furnished the data for assessment. The initial jama was Rs. 1,11,357 to increase progressively to Rs. 1,13,840, and the cultivated area was estimated at 88,351 acres, to which must be added the areas of ten villages not then measured, or about 11,000 acres. The Sayads and Ulama were assessed at the full quarter rate, and the grain allowance to leading men was in many cases resumed. This jama was an excessively severe one, and a year or two after its imposition in some of the most heavily assessed villages remissions were made to a total of Rs. 5,852. This Settlement was of the roughest possible description and ran for five years, namely, from 1853-54 to 1857-58, inclusive.

14. Major Coxe, Deputy Commissioner, made the second Summary Settlement of Marwat. The standard

Second Summary Settlement.

of demand was the same as that in the former Settlement, but there was more data at hand to form a basis of assessment. The jama imposed was Rs. 1,23,417 and the cultivated area was put down at 159,934 acres, but to this must be added about 5,000 acres belonging to villages not then measured. On the whole this assessment was lighter than the former owing to increase of cultivation, but it was still heavier than the country could then pay and thrive under. The incidence was unequal, and the internal distribution within the villages was left to the proprietors to arrange. The working of this settlement was unsatisfactory. Though the revenue was always realised

without much difficulty, its punctual payment reduced many villages to great poverty, and the area mortgaged went on steadily increasing. Between 1858 and 1869 no remissions or suspensions were given, except in a few solitary instances. During that decade hardly a year elapsed without the failure of the spring crops in some villages. In 1861-62 both the spring and autumn crops were generally so poor that it may be called a famine year; yet during these years only Rs. 42,220 were suspended and subsequently realized, Rs. 7,596 remitted and Rs. 4,300 reduced. From 1868-1872, a period of four years, not one good crop was cut in Marwat, and in Mr. Thorburn's opinion the relief given was far from adequate. From 1872-1878 rains were more abundant, harvests above the average, and remissions and reductions freely granted in deserving cases.

15. The Regular Settlement of Marwat was taken up by Mr. Thorburn in 1872 and the new assessments came into force in 1878. Mr. Thorburn

Regular Settlement.

drew up a half net assets statement in accordance with the instructions he had received. This amounted to Rs. 1,56,078. The jama imposed was fixed at Rs. 1,13,448* or 72 per cent. of half net assets, Rs. 9,969 less than the summary assessment of 1858-59 and Rs. 7,695 less than that of 1876-77 with which year the Summary Settlement expired. Mr. Thorburn's opinion on his own assessments in 1878 was that, with the exception of 75 villages in the sandy tract, the jama were nowhere high and for most of the border villages decidedly light. Conditions have altered so much in the last thirty years that it is useless to discuss the pitch of the assessment in the irrigated circles. It is sufficient to say that the rates are now extremely light and that no difficulty has been experienced by the landowners in meeting the revenue demand. In the barani tracts of Marwat the case is entirely different. Owing to the large increase of the cultivated area in the trans-Kurram Thal, the revenue of the Shiga Circle, as a whole, appears very moderate. But the assessment of the old established villages, as Mr. Thorburn acknowledged, was by no means a light one. An examination of the figures for the old Shiga Khatina Circle will illustrate the comparative severity of the last assessment. That circle in 1878 consisted of 61,470 cultivated acres; the cultivated area is now recorded as 66,550 acres, an increase of 8 per cent., Mr. Thorburn in his produce estimate worked out the average annual outturn of wheat to be 119,675 maunds and of gram to be 72,131 maunds. A produce estimate, based on the outturns I have assumed and the crop statistics, gives the average production for the last six years as 85,086 maunds of wheat and 79,454 maunds of gram. Thus, despite an increase in the cultivated area of 8 per cent., Mr. Thorburn's estimate of the grain producing capacity of the tract is higher than mine and his final assessment if not based on half net assets was no less than 80 per cent. of that sum. Had Mr. Thorburn been in possession of thirty years' complete statistics as we are now, I have no doubt he would have assessed this tract much lower; and had prices not risen but remained stationary, there is every reason to think the assessment would have broken down.

The Gadwad Circle affords an even more striking instance of this kind than the Shiga Circle. Mr. Thorburn assumed the whole cultivated area 78,363 acres to be cropped every year, allowing for failure in his outturns. The outturn of wheat was thus put at 4 maunds 13 seers per acre and of bajra at 4 maunds 39 seers per acre. The result of this calculation was to give 143,364 maunds as the average annual production of wheat and 104,460 of bajra. There has been an increase of 35.6 per cent. in the cultivated area since Settlement, but the average sown area of the last six years has been only 65,743 acres, and the average matured area only 44,858 acres. According to my produce estimate the yield of wheat is 106,248 maunds per annum and of bajra only 24,641 maunds per annum. The assessment of this circle was only 69 per cent. of half net assets, but the above figures show that it was in reality very much higher than Mr. Thorburn supposed. In fact, despite an increase in prices estimated at 59 per cent., the arithmetical soil rates brought out by my half net asset estimates on rodkahi and barani soils are the same as those imposed by Mr. Thorburn in the old Pakha Circle, viz. 12 annas and 7 annas, respectively. The actual incidence of the revenue for the circle as a whole was lightened by the grant of frontier remissions, but as the villages which benefited most by these remissions were those lying directly under the hills with the best rodkahi

* This is inclusive of Rs. 2,580 the revenue of three villages transferred to Dera Ismail Khan, and exclusive of Rs. 2,645 frontier remissions.

lands, the incidence of the revenue on the poorer rodkahi and barani soils remained unduly high. The statistics of alienation and the difficulty with which the demand has been realised in the past fully bear out my contention that the value of barani lands was over-estimated at the last Settlement, and that stiff soils were in reality assessed above half net assets. The assessment has nearly broken down in several of the villages of the Gadwad Circle, and had it not been for the rise in prices would certainly have done so. I may say here that Mr. Thorburn's circle rates were not derived directly from the half net assets estimate but from an estimate he framed of the revenue paying capacity of the circle village by village—a procedure to which the Financial Commissioner took exception, on the ground that this mode of assessment rendered criticism impossible, except on the general consideration whether the assessments were fair as a whole.

16. The actual suspensions granted in the Marwat Tahsil from 1878 to 1904 amount to Rs. 1,72,953, of which Rs. 45,334 were remitted, Rs. 38,031 between 1878 and 1888. After the collections of Rabi 1904 the outstanding balance of suspended revenue was only Rs. 5,203. The distribution of suspensions and remissions are summarised in the following table. Circle figures are not available for the first ten years :—

SUSPENSIONS.				REMISSIONS.			
Year.				Shiga.	Gadwad.	Tandoba.	Total.
				Rs.	Rs.	Rs.	Rs.
1878-1883	...	...	...	...	...	...	24,362
1883-1888	...	...	...	...	...	...	13,669
1888-1893	...	...	...	32,739	19,096	...	6,447
1893-1898	...	...	...	17,830	22,354	28	856
1898-1903	...	...	...	5,200	25,779	449	...
Total	...	...	...	...	...	...	45,334

It will be seen that during the earlier years of the Settlement remissions were frequently given. Since the rise in prices these have not been so necessary; and the rules framed by Mr. Thorburn for suspensions and remissions are in abeyance. Suspensions on a large scale will always be necessary where a tract of this description is under fixed assessment. Latterly they have been given liberally and judiciously; and the outstanding balance is creditably small. Suspensions have been more frequent in the Gadwad Circle than elsewhere, and it is only in this circle that an outstanding balance is found—one more indication of the over assessment of the poorer villages of North-West Marwat.

17. The number of warrants issued for the collection of arrears of land revenue from 1885 to 1904 were as follows :—

Year.	Number of warrants.	Year.	Number of warrants.
1885-86	66	1895-96	203
1886-87	100	1896-97	117
1887-88	142	1897-98	323
1888-89	137	1898-99	353
1889-90	86	1899-1900	163
1890-91	209	1900-01	223
1891-92	203	1901-02	476
1892-93	304	1902-03	407
1893-94	196	1903-04	117
1894-95	256	...	...

So much depends upon the methods of the Tahsildar who is responsible for the collection, that it is difficult to form any conclusion from the number of warrants issued in any given year. It is only in the Gadwad Circle that the land-owners can be said to have any difficulty in paying the revenue. The dates of the

spring kists in Marwat are 1st July and 1st August. Harvesting is over early in June, and the revenue payers have thus from three to seven weeks in which to sell their grain and pay their revenue. Yet even in the prosperous Nar Circle a large proportion of the revenue is not paid by the due date. The figures for the whole tahsil for the last nine years are—

Year.								Not paid by due date.	Subsequent payments.
								Rs.	Rs.
1895-96	...	...	...	...	...	...	...	92,055	76,178
1896-97	...	...	...	...	...	...	...	1,04,562	80,533
1897-98	...	...	...	...	...	...	...	1,03,705	1,03,092
1898-99	...	...	...	...	...	...	...	1,01,752	1,01,597
1899-1900	...	...	...	...	...	...	...	1,13,987	94,068
1900-01	...	...	...	...	...	...	...	81,414	76,467
1901-02	...	...	...	...	...	...	...	86,250	67,624
1902-03	...	...	...	...	...	...	...	68,769	68,618
1903-04	...	...	...	...	...	...	...	30,055	30,055

The only conclusion to be drawn from these figures is that the Marwats withhold payment of the revenue till the last possible moment, whether they have any difficulty in meeting the revenue demand or not.

18. Mr. Thorburn's chief anxiety was as to the ability of the villages in the sandy tracts of Marwat to pay the fixed assessment. With the general rise in prices and the extension of cultivation, these villages have had no difficulty in meeting the Government demand. Time has also shown that the sandy tracts are far more secure than the stiff soil of Marwat. In twenty years, if the village note-books can be trusted, there have been only two serious failures of the crop in the Shiga Circle—1892 and 1902—while in the Gadwad Circle the kharif crop is always poor and failure of the rabi crop on the barani clay and the tail of the rodkahi lands is of common occurrence. This circle was over-assessed at the last Settlement and several of the poorer villages are permanently in arrears with their revenue. The percentage of alienations has been higher here than elsewhere in Marwat, and suspensions and remissions have been granted more frequently; but with the rise in prices and the extension of cultivation, the larger villages have now no difficulty in meeting the annual demand. The rates in the irrigated circles were very low at last Settlement; while the area under irrigation has so increased and the class of irrigation has so improved, that the rates are now purely nominal. No suspensions or remissions have been granted of late years in the irrigated circles, and none have been needed.

19. The revenue imposed at the last Settlement, excluding three villages transferred to Dera Ismail Khan with a revenue of Rs. 2,530, amounted to Rs. 1,13,513, of which Rs. 2,645 were granted as border remissions. The present demand is Rs. 1,13,766. The slight difference between the two figures is due to the village of Kana Totizai, assessed at a fluctuating rate of four annas an acre, being put on a fixed assessment of Rs. 207 in 1835, and to the non-inclusion of certain petty assignments in the land revenue at the time of the last Settlement. Together these give an increase of Rs. 296, from which must be deducted Rs. 43, representing the revenue of land taken up for Government roads. Otherwise there have been no changes in the rent-roll of any village in the tahsil.

20. The assigned revenue has been shown in the tahsil note-book as Rs. 2,653 not collected and Rs. 1,375 payable to inamdars and muafidars. At this rate the assigned revenue in Marwat amounts to only 4 per cent. of the land revenue as against 14 per cent. in Bannu. For some reason the Marwat "barats" cash inams granted to leading men, have never been shown in the list of assigned revenue. They amount to Rs. 5,200, and they have now, for the first time, been shown in their proper place, with the result that the percentage of assigned to land revenue has risen from 4 to 9. Both inams and frontier remissions will require revision, and a separate report will be submitted on the subject.

PART III.—GENERAL STATISTICS.

21. The area of the Marwat Tahsil has been classified as follows in the present measurements :—

					Shiga.	Gadwad.	Tandoba.	Nar.	Tahsil.
Total area in acres					362,467	271,541	117,159	23,707	774,874
<i>Percentage of area.</i>									
Waste and unculturable					32.4	37.8	19.6	24.49	32
Banjar kadim					17.4	25.3	44.1	12.84	24.1
Banjar jadid ... ..					.1	.6	.3	...	.3
Cultivated					50.1	36.3	36.0	62.67	43.6

Nearly one-half of the tahsil is recorded as cultivated. A large area is taken up by the hills, ravines and river beds. Unless improvements are made in the system of irrigation further extension of the cultivated area is improbable. Nothing can be made of the stiff clay soil in the north of the tahsil without water, and in the south much of the Shiga, which has lately been brought under cultivation, is so inferior as to hardly repay the cost of cultivation.

22. In the following table the cultivated area as now recorded is compared with the cultivated area of the last Settlement :—

Circle and year.					Nahri.	Rodkoi.	Barani.	Shiga Khatina.	Shiga.	Total cultivation.
					Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Shiga	...	...	{	1878	...	467	4,578	38,763	76,483	120,291
				1905	...	4,079	6,835	17,007	153,783	181,704
Gadwad	...	...	{	1878	...	17,814	22,422	15,918	16,494	72,648
				1905	...	26,912	31,793	3,351	36,457	98,513
Tandoba	...	...	{	1878	...	11,174	1,144	7,817	346	22,933
				1905	...	28,694	1,041	4,153	790	42,233
Nar	...	...	{	1878	...	9,467	...	...	1,085	10,552
				1905	...	12,859	...	...	1,997	14,856
Tahsil	...	...	{	1878	...	20,641	19,425	34,817	55,027	96,514
				1905	...	41,553	32,032	42,781	21,148	199,792

There has been an increase since the last Settlement of 49 per cent. in the cultivated area, and the area under canal irrigation has doubled.

The rodkoi and barani areas have increased by 65 and 23 per cent., respectively, while Shiga has doubled and Shiga Khatina occupies less than half the area recorded in the last Settlement. The increase in the canal irrigated area lies chiefly in the Tandoba Circle, where new canals have been constructed since last Settlement. The increase in the rodkoi areas is shared by the Shiga and Gadwad Circles. Over 4,000 acres are now recorded as rodkoi in the Shiga Circle, but such land differs entirely from the rodkoi of the Gadwad Circle. In the latter the soil is, as a rule, fairly stiff; the torrent dam is often a work of some magnitude, and when a flood does come down, it covers a large area and deposits silt all along its course. In the Shiga Circle the rodkoi soil is generally sandy; the dam is made of sand and gives way with every flood; the torrent irrigates a very small area and carries with it an enormous quantity of light sand, which is injurious to the soil. In Tandoba a large area, formerly barani, is now irrigated by canals. In the Shiga and Gadwad Circles there has been a slight increase in the barani area. In the Gadwad Circle 26,912 acres are recorded as rodkoi and 31,793 acres as barani, but a very large proportion of this area is in reality banjar. It is common in Northern Marwat to find one corner of a field cultivated and the remainder uncultivated. The lower lying portion or the land

just under the *band* receives sufficient saturation for ploughing, while the remainder of the field is too hard to admit of cultivation. This may occur for years in succession, but the whole field is regularly shown in our statistics of cultivation.

The area recorded as Shiga Khatina is considerably less than at the time of the last Settlement. This is due to two causes—(1) deterioration of the soil, (2) more careful classification. In the last Settlement if the villagers called land Shiga Khatina, it was entered as such, irrespective of whether the people in another village would class it as Shiga Khatina or not. Thus Shiga Khatina formerly included both good and indifferent land. The reduction in the area is due to an attempt to grade the soils of the circle more thoroughly according to quality. Deterioration is not uncommon, for the sand-storms, which blow incessantly in the hot weather, often pile up light sand on the soil and convert it from Shiga Khatina to the poorest Shiga.

Shiga has increased in every circle. In Shiga and Tandoba the chief increase has been in the trans-Kurram Thal. The Shiga on the Kurram banks and the Shiga below the hills are alike indifferent. The best Shiga is to be found half-way between the two. In the Gadwad Circle a large quantity of Shiga has come under cultivation since last Settlement, but this includes some very indifferent land, especially round Pezu.

23. Since the last Settlement there has been a census of Marwat every ten years, viz., 1881, 1891 and 1901. The changes in the population during that time are shown in the following table:—

						1872.	1881.	1891.	1901.
Population	...	...	...	...	...	60,169	75,581	84,145	96,332
Ditto	per square mile	...	...	...	...	49	...	68.47	78.38
Ditto	ditto	of cultivation	...	...	...	170	...	166.62	179.39
Increase per cent. during each period	...	...	...	...	...	...	25	11	14

Classified by religion and sex the figures of the last census were—

						Men.	Women.	Total.
Muhammadans...	...	...	...	...	...	46,347	42,491	88,838
Sikhs	...	...	...	...	...	97	46	143
Hindus	...	...	...	...	...	3,954	3,394	7,348
Others	...	...	...	...	...	3	...	3

The census tables do not give the distribution of the people into tribes by tahsils, but the number of Marwats enumerated in the district was 52,179 in 1901 against 38,037 in 1872. There must be some error in these figures. There are considerably more than 52,179 Marwats in the Marwat Tahsil. I should say they formed at least 75 per cent. of the total population of the tahsil. The remaining Muhammadans are Bhitannis, Khutaks, Wazirs, Jats, Sayads and Arains, all agriculturists. The chief increase of population has been in the trans-Kurram Thal and in the irrigated tracts. During the last ten years the increase in the population of the Gadwad Circle has been only 5 per cent. and in the old established villages of the sandy tract only 6 per cent.

The pressure of population per square mile of cultivation is extremely low. The Punjab provincial average is 492. But in Marwat the frequent failure of the crops, the low outturn, and the ease with which a large area of sandy land can be cultivated, fully account for the figures given in the above table. There are only 91 women to every 100 men in Marwat, a fact which may explain the high price of wives, a frequent cause of indebtedness.

There is one Hindu to every 12 Muhammadans in Marwat. In the neighbouring Teri Tahsil of Kohat, with a total population of 96,012, there are 24 Muhammadans to every Hindu. The obvious conclusion is that there is more money to be made in Marwat than in Teri.

The percentage of men between 15 and 60 years of age to the whole population of the district is 31, and the number of men engaged in agriculture may thus be put roughly at 26,000 in the whole tahsil. The cultivated area is 337,306 acres, and one may therefore assume that there are at least 13 acres of cultivation to every zemindar.

24. The Marwats are a loyal, orderly and slow-witted people. A few

Character of the people as agriculturists.

of them are employed in the Border Military Police and the Frontier Militia.

The number in the regular army is insignificant. For some reason no Punjab regiment recruits Marwats. They are thus little affected by outside influence and their character is the direct result of their environment. In the heart of Marwat the Shiga Circle, south of the Kurram, where the tribe first passed from the pastoral to the agricultural stage, the lands yield nothing but gram and wheat. Once the spring crop is sown the zemindar can only leave things to fate; everything depends on the rainfall, and no further effort on his part is of any avail. It is only natural to find that the Marwat is difficult to move and averse to effort. This character he has taken with him to the irrigated circles, where he can only be described as a slovenly cultivator.

All Marwat is split up into factions. The historic parties are the black and white "Gundis," but there are endless minor factions; and these form the chief interest and topic of conversation throughout the tahsil. Careless, procrastinating, absorbed in factious disputes, the Marwat falls an easy prey to the money-lender, and hence it comes about that every twelve Marwats support one Hindu. The Bhitannis are only slowly passing from the pastoral to the agricultural stage, and as agriculturists are inferior even to Marwats. The Jats and Arains are the best agriculturists in the tahsil, but the lands they occupy in the Shiga Circle do not afford much scope for agricultural skill.

25. Communications have vastly improved since the last Settlement.

Communications.

On the far side of the Indus, the railway has been brought nearer to the

district. The Kohat and Dera Ismail Khan roads have been metalled and the Gambila and Kurram rivers bridged. The roads between Bannu and Isakhel, however, remain very much as before, mere sandy tracts on either side the Kurram, with deep fords across the river at Daddiwala or Darra Tang. In Marwat proper the only road, practicable for cart traffic, is the Dera Ismail Khan-Bannu road.

Throughout Marwat the bulk of the trade still goes on the backs of camels, and as far as the grain trade of Marwat is concerned, improvements in communications within the district have made little change in the routes or the methods by which the surplus grain is carried to Dera Ismail Khan and Isakhel. In Marwat itself the country is open, and beyond the fact that traffic is restricted to the cuttings across the ravines and to the fords of the Kurram, pack animals can move everywhere without difficulty.

26. Isakhel and Dera Ismail Khan are the chief markets for Eastern

Markets.

and Southern Marwat; Bannu for the north-west of the tahsil and for the

Kurram Gambila Doab. A certain amount of trade passes through the Bain Pass to Tank, but this is inconsiderable. Statistics are now available of the export and import trade of the Bannu District, 1904-05. They are given in Appendix I. The trade posts in the Marwat Tahsil are at Darra Tang, Bergi and Pezu. Darra Tang commands the road to Isakhel, south of the Kurram, and Bergi commands the road to Isakhel, north of the Kurram. Pezu commands the road to Dera Ismail Khan. The posts for the Bannu Tahsil are at Saidgi and Latambar, commanding the Tochi and Kohat roads, respectively.

The Bergi post was established only in April 1905, and thus much of the trade with Isakhel went unrecorded in 1904-05. The figures from April to September 1905 are sufficient to show that Isakhel is the chief market for the principal exports of Marwat wheat and gram.

27. The Bannu District is one of the most isolated in the north of India.

Prices.

It is situated at a great distance from the railway, and the wide bed of the

Indus intervenes at Isakhel and Darya Khan on the main trade routes between

Marwat and the broad gauge line. The grain grown in Marwat and in the whole Bannu basin is more than the population can consume. Hence prices rule exceptionally low. As an instance of what prices may fall to in Bannu in 1894 wheat was selling at 18 annas a maund and gram at 12 annas.

The prices assumed for commutation purposes, with some comparisons, are given in the following table in annas per maund :—

Grain.						Assumed in Marwat.	Assumed in Kohat.	Assumed in Dera Ismail Khan.	Average Gazette prices for 21 years.	Average prices from grain-dealers' books for 21 years.	Last Settlement.
Wheat	...	...	...	...	...	26	28	27	28	29	16
Barley	...	...	...	...	...	16	17	18	20	15	11
Gram	...	...	...	...	...	19	24	21	25	21	12
Rice	...	...	...	...	...	24	21	21	62	37	...
Maize	...	...	...	...	...	21	24	26	30	20	13
Jowar	...	...	...	...	...	18	22	20	24	28	12
Bajra	...	...	...	...	...	24	23	23	31	26	13
Moth	...	...	...	...	...	24	27	26	...	24	16
Cotton	...	...	...	...	...	60	53	49	...	...	...

The 21 years referred to in columns 4 and 5 are from 1878 to 1902 omitting 1879 and 1880, the years of the Cabul War, 1897, the year of frontier war, and 1900, the famine year when prices were unduly inflated. It will be seen that prices are set well below the average recorded prices of the district and of those assumed in neighbouring Settlements. Although the rise in commutation prices for the Marwat Tahsil, as compared with the last Settlement, represents a general rise of 59 per cent., it cannot be said that the above prices are anything but moderate, or that the average price of any staple during the next twenty years is likely to fall below the price now assumed.

The following table shows the rates adopted at the last Settlement and the resultant revenue obtainable by enhancement of prices :—

CIRCLE.			Settlement rate.	Enhanced by 59 per cent.	Present cultivated area.	Resultant revenue at enhanced rates.	Present revenue.
			Rs. a. p.	Rs. a. p.	Acres.	Rs.	Rs.
1.	Shiga	...	0 7 9	0 12 4	181,704	1,40,064	59,334
2.	Gadwad	...	0 7 4	0 11 7	98,513	71,319	35,661
3.	Tandoba	...	0 8 1	0 12 10	42,233	33,875	11,597
4.	Nar	...	0 10 5	1 0 6	14,856	15,320	6,874

But the figures I have given in Part II, with reference to the over-assessment of the old established villages of the Shiga and the stiff soils of the Gadwad Circle, will show that any enhancement of revenue, as brought out by the above process, would be out of the question in both these circles. On the other hand the rates of the last Settlement were extremely low in the irrigated circles; in the Tandoba Circle the land brought under irrigation from the new canals yields an outturn far superior to anything the circle was able to produce before, and in the Nar Circle the considerations which led Mr. Thorburn to assess so leniently viz., the fact that the land had only just come under cultivation and the grantees were in many cases deserving individuals, no longer have the same force. The irrigated circles can stand a heavier assessment than Rs. 49,000, while the unirrigated circles would be ruined by an assessment anything approaching Rs. 2,11,000.

28. The agricultural stock of the tahsil, as recorded in 1904, is compared in the following table with the figures given at last Settlement:—

Agricultural stock.

Name of Circle.	Bulls and bullocks.	Buffaloes, calves and cows.	Ponies, mules and horses.	Camels.	Donkeys.	Sheep and goats.
Shiga	6,958	5,042	183	988	7,171	21,421
Gadwad	6,310	5,164	174	1,347	6,330	24,216
Tandoba	5,356	6,584	351	560	972	6,227
Nar	2,242	2,635	231	13	201	2,633
Belonging to this district but enumerated in other districts.	41	55	51	75	110	605
Total ...	20,907	19,480	990	2,983	14,784	55,102
Last Settlement ...	25,954	22,281	626	4,308	9,253	21,188

The above table shows an increase of 161 per cent. in the number of sheep and goats and an increase of 59 per cent. in the number of donkeys, while the number of plough cattle, cows and camels has decreased by 17, 14, and 31 per cent., respectively. The increase in the number of donkeys is easily explained, by the fact that there are now more people for whom water must be carried than there were thirty years ago. In the same way the number of camels has decreased with the increase of cultivation and the corresponding reduction of the area under scrub jungle. The decrease in the number of plough cattle, on the other hand, requires some explanation, more especially when the increase in the area under cultivation is taken into consideration. The explanation is to be found in the fact that the last enumeration was made in February, while in the sandy tracts of Marwat the plough cattle are as often as not sold after the rabi sowings to dealers from Isakhel, who take them away to the Indus, and bring them back in the autumn to sell again to the Marwats. Owing to the expense of watering the cattle it pays better to sell them than to keep them eight or nine months out of work. For the apparent decrease in the number of buffaloes, cows and calves, no satisfactory explanation is forthcoming, unless it be another sign of the poverty of Western Marwat. In the Marwat Thal and the irrigated circles the number of these animals must have increased by at least 50 per cent. since last Settlement.

The extraordinary increase in the number of goats and sheep is probably an over-estimate due to faulty enumeration at the last Settlement. Mr. Thorburn has left it on record that the number of goats and sheep recorded in the Settlement enumeration fell far short of the actual figures.

Outside the irrigated circles the Marwats clear no profits on their agricultural stock, but every year have to find means out of their gram and wheat crops to repurchase their plough-cattle, buy the ghi they eat and the clothes they wear and provide for the upkeep of the gram fed donkeys that carry the water to their villages. The district is not self-sufficing in the matter of live-stock. The trade registration returns for 1904-05 (see Appendix I) show the value of the animals imported to have been Rs. 1,54,838 against an export valued at only Rs. 1,11,259, and the villages of Southern Marwat are worse off in this respect than the rest of the district. They cannot breed their own cattle, or, in many cases, afford to keep them all the year round. Every year there is a heavy outlay on cattle purchased from Mianwali and the Sherani country.

Although ghi made from ewe's milk and camel's milk is used to supplement the scanty supply, the production of the tahsil is not equal to the consumption. The import of ghi in the Bannu District exceeded the export by half a lakh of rupees in 1904-05. This leaves little margin of profit for the sale of ghi by zemindars of the Marwat Tahsil.

The sale of hides in many districts brings in a considerable income, but in Marwat the profits under this head are reduced to a minimum, as so many goat-skins are required for carrying water. The expense of providing himself with

"jaluns" or goat skins is a heavy item in the domestic economy of a Marwat zemindar. An attempt to estimate the gross value of the produce of agricultural stock follows:—

A cow gives two seers of milk a day and a milch buffalo four seers. One seer of milk yields one chittak of butter or two-thirds of a chittak of ghi. Supposing one-third of the cows and buffaloes in the tahsil to be in milk all the year round and ghi to be selling at Rs. 35 a maund, the gross value of the ghi produced in Marwat comes to Rs. 1,20,078 per annum. In the same way the sale of calves, assuming every cow to calve once in three years, a calf to be worth Rs. 10 and a buffalo-calf Rs. 20, would bring in Rs. 45,032. Assuming 4 per cent. of the cattle to die every year and a hide to be worth Rs. 2, the gross income from hides will come to Rs. 3,261 per annum.

The income derived from camels includes hire, ghi, wool, sale of young and hides. After deducting the cost of the "Ushas" who graze the females and of the attendants who accompany the male camels hired out for transport, I estimate the income derived from camels at Rs. 46,528.

The income from sheep and goats is derived from wool, hair, ghi, young, and hides, and amounts, after deductions, to roughly Rs. 47,685 or Re. 0-14-0 per head per annum. In the Thal tract of Dera Ismail Khan Mr. W. M. Hail-y, C.S., worked out the profits at Re. 1 per head. Assuming the income derived from the hire of carts to be Rs. 100 per cart per annum, the gross income from this source works out to Rs. 7,800.

The following table exhibits the gross income derived from the various sources detailed above by circles and for the whole tahsil:—

DETAIL.	CIRCLES.				Tahsil.
	Shiga.	Gadwad.	Tandoba	Nar.	
	Rs.	Rs.	Rs.	Rs.	Rs.
Ghi	31,298	28,649	42,263	17,868	1,20,078
Sale of calves	11,819	10,622	15,882	6,709	45,032
Hides	960	956	955	390	3,261
Camels	15,808	21,552	8,960	208	46,528
Sheep and goats	18,744	21,189	5,448	2,304	47,685
Carts	100	5,100	300	2,300	7,800
Total	78,729	88,068	73,808	29,779	2,70,384
Population	38,762	28,751	19,789	9,030	96,332
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Income per head	2 5 0	3 1 0	3 12 0	3 4 0	2 13 0

The figures above make no allowance for domestic consumption. If we assume that Rs. 3 per head, or Rs. 12 per family, represents in money the average annual expenditure, exclusive of food grains, i.e., on ghi, clothes, &c., it appears that there is a slight deficit in the whole tahsil and a surplus in the irrigated circles which derive a considerable income at the expense of the rest of the tahsil. The deficit is entirely in the Shiga Circle.

In the north of the Gadwad Circle the people clear a profit on their agricultural stock, more especially on the large flocks and herds they graze on the Bhitanni hills. They also derive an income from the sale of wood, charcoal, honey, "Isabgol" and "tukhm malang" herbs used in flavouring sharbet and carbonate of soda, which they prepare from "khar." In the south of the circle the conditions are the same as in Shiga.

In all the Marwats must find roughly Rs. 20,000 above and beyond the profits on their agricultural stock to pay for the ordinary necessities of life, and this must come out of the sale of wheat and gram.

29. A comparison of the statistics of production and consumption are given in the following table :—

Production and consumption.

CIRCLE.	1	2	3	4	5
	Production of food grains in maunds.	Allowance for donkeys, plough cattle and $\frac{1}{8}$ for seed.	Balance.	Consumption at 7 maunds per head per annum.	Balance left.
		Mds.	Mds.	Mds.	Mds.
Shiga	528,423	61,959	466,464	271,334	+195,130
Gadwad	219,190	38,335	180,855	201,257	-20,402
Tandoba	225,705	19,064	206,641	138,523	+68,118
Nar	71,146	6,423	64,723	63,210	+1,513
Tahsil	1,044,464	125,781	918,683	674,324	+244,359

The figures in column 1 are taken from the average outturn of the years 1899 to 1905 used as a basis for the produce estimate. In column 2 three maunds per annum have been allowed per doukey in the Shiga and Gadwad Circles and 30 seers for every plough bullock throughout the tahsil. In column 4 the consumption per head has been put at 7 maunds. This is the maximum allowed by the Settlement Manual, and I have taken this figure on the ground that Marwats have little dairy produce to supplement their food supply and consequently eat more grain. The result is to show a surplus in every circle but Gadwad. This I believe to be fairly correct, but the surplus in the Nar Circle is far below what it should be. I am inclined to think this is partly due to an under-estimate of the outturn. The zemindars of Gadwad make up the deficit by working as hired labourers elsewhere and by selling wood, charcoal, &c. Half the sheep, goats and camels of Marwat belong to the Gadwad Circle. The average surplus of the whole tahsil is given as 244,359 maunds. Putting the value of a maund at Re. 1-8, this is equal to Rs. 3,66,538. I have put the average expenses of the Marwat outside food grains at Rs. 3 per head per annum or Rs. 12 per family. This includes clothes, oil, ghi, &c. These expenses over the whole tahsil exceed the gross income brought in by agricultural stock, &c., by, roughly, Rs. 20,000. Against this must be set the value of such crops as oilseeds, cotton, &c., worth about Rs. 50,000. Roughly, one may say that the Marwat export of grain brings them in at least Rs. 3,50,000 over and above the cost of mere existence. There are three-and-a-half lakhs to pay the revenue and provide luxuries. This calculation is based on the assumption that a family of four consume 28 maunds of grain per annum and consume Rs. 12 worth of necessaries. Considering that one maund a month is the wage of an able-bodied labourer the above seems in every way a fair estimate. The value of the above figures can be further tested by a comparison with the trade registration figures. A surplus estimate for Rabi 1904 and Kharif 1904, worked out on the same lines as above-gives 453,894 maunds as the excess of production over consumption. The trade statistics (April 1904 to April 1905) show the export of gram and wheat by Pezu and Darra Tang to have been 137,473 maunds and 108,769 maunds, respectively. The grain passing by these routes may be taken to belong exclusively to Marwat. In 1904-05 no trade post was established at Bergi on the north of the Kurram and thus the whole of the Thal trade to Isakhel went unregistered. According to the figures for 1905 up to 1st September the export of grain by this route is the heaviest in the whole tahsil. I have assumed that three-fourths of the Bergi export comes from Marwat, one-fourth probably coming from the Kohat and Wazir Thals. Assuming that the Bergi export bore the same proportion to the whole in 1904-05 as it has done April to September 1905, the total Marwat exports for 1904-05 would come to wheat 150,119 maunds, gram 199,329 maunds or 349,448 maunds in all. Grain sent to Bannu for the consumption of the garrison or the trans-border export is not included in these figures. If these figures were only known and included in the total, four-and-a-half lakhs of maunds would be in no way an excessive estimate of the total export from the tahsil and this is the figure brought out by the surplus estimate for the year. These calculations are necessarily very rough.

The addition or deduction of a few seers per acre to the outturn or in the average consumption per head make a vast difference in the results. On the whole an estimate of the net income of the tahsil at three-and-a-half lakhs of rupees a year above and beyond the mere cost of living cannot be far wide of the mark and is if any thing an under-estimate.

Tenures.

30. The 152 villages under assessment are classified as follows :—

Class of tenure.					Shiga.	Gadwad.	Tandoba.	Nar.	Tahsil.
Bhayachara	...	...	...	...	41	40	13	19	113
Pattidari	...	...	...	...	11	...	5	14	30
Zemindari	...	...	...	...	1	...	1	7	9
Total					53	40	19	40	152

When the Marwats drove the Niaz-ais into Isakhel and took possession of their present country the land was partitioned in the manner described in paragraph 157 of the Settlement Manual, with two important exceptions. In the first place the lands of the Khel or sub-section were not necessarily all in one block. The lands of a subsection are often found in two or three places at a great distance from each other. To give an instance, the Pahar Khels own land on the north of the Gambila in the estate which is named from their tribe and they have also lands in Zangi Khel, an estate some 10 miles south of the Gambila. It is common, too, to find the lands of five or six subsections scattered all over a block of land. In Marwat five or six sub-sections are frequently found not only "*chakbat*" but even "*khetbat*." In the estate of Dabak Mandra Khel there are three such sub-sections, and in one, the Mundra Khel, there is a "*Khula vesh*," while in the other two the original distribution is permanent. In several instances at the last Settlement the lands of such sub-sections were recorded not as tarafs of the same estate but as separate estates. The second exception to the normal form of partition is that in the early history of Marwat there appear to have been no grants of land to leading men. The principle of equality was strictly observed and the tribe resented any assumption of superiority by one of their members. To secure this equality of conditions the lands were redistributed at regular intervals on the *Khula vesh* system described in paragraph 158 of the Settlement Manual. In most Marwat tribes the *Khula vesh* system had disappeared before the British occupation of the Bannu District. It had ceased to exist in all parts of the tahsil where any improvement of the land by the cultivator was possible, as in Northern Marwat, and also where the influence of chiefs or leading families, as in the Achukhel and Totizai tribes, had grown too strong for the communistic principle.

The survival of the *vesh* up to annexation was due to the fact that no improvement of the sandy soil was possible, and that the question of, whether a *vesh* should take place or not, rested with the majority. The "*Have-nots*" are more numerous than the "*Haves*" in any community, and they would naturally vote for a fresh *vesh*.

The survival of the *vesh* so long after annexation is due to the sympathetic treatment which the system received from Mr. Thorburn in the last Settlement. At the same time there is no doubt the custom is bound to disappear.

Since the last Settlement *vesh* in the Matora and Sekundarkhel estates has been declared extinct. In Zangikhel the *vesh* made in this Settlement is to be the last that will take place. In Mandrakhel there are signs that the *vesh* is moribund. Only in Landiwah and Abbakhel does the *vesh* retain its old vitality.

Before I leave the subject I may say that while the standard of cultivation in a *vesh* village is no lower than in any other in the Shiga Circle, the inability to sell or mortgage more than a temporary interest has preserved their lands to certain communities who would otherwise have undoubtedly fallen victims to the money-lenders.

As the *vesh* became extinct in any tribe its place was taken as regards cultivated land by possession becoming the measure of ownership and as regards uncultivated land by a system where ancestral shares or "*dadhas*" were the measure of ownership.

These "dadhas" were probably the "khulas" of the last vesh and differed from the vesh khulas only in this respect that they were not subject to redistribution. As more ground was broken up and the common land partitioned, possession became the sole measure of ownership, so that in all the early Marwat Settlements, except where the vesh survived the tenure, is now bhayachara. Apart from the vesh villages pattidari tenures are found in the Nar Circle and in the Thal colonies across the Kurram. In the Nar Circle tenures were originally zemindari; the lands of each grantee were made into a separate estate; in cases where the heirs have not partitioned the estate the tenure is at present pattidari. This state of affairs will not last long and the Nar villages will eventually become bhayachara. The state of the Thal is peculiar and requires a more lengthy description. For many years this tract was debateable land, where Khataks, Marwats and Wazirs struggled for supremacy. In 1857-58 the Marwats were declared owners of the land they now hold, but fifteen years elapsed before the partition of the tract between the main Marwat clans. The manner in which proprietary rights were allotted in each tribe is most interesting. In some cases the owners took possession of their lands and in these villages tenure is bhayachara. A notable exception is afforded by the Tajizai tribe, who preserve the khula vesh in their Thal colony Landiwah, though the system is extinct in their original settlements. In cases where the tribe did not take immediate possession of their Thal lands, proprietary rights were as a rule allotted on the basis of the "dadhas" or ancestral shares; and these estates are still pattidari. On the whole the distribution of the Thal lands on ancestral shares has been attended by anything but satisfactory results. In some cases, as with the Lund tribe, the shares are so infinitesimal, that the majority of the proprietors have made no effort to get possession of their lands or to realize any dues from the settlers who occupy them. In the case of the Achukhel tribe contractors are employed to collect rents from the settlers, but the owners come very badly out of the bargain. The Lund tribe now recognise any of their number who settle in the Thal as adna maliks, and the Achukhel lands have been partitioned in this Settlement.

Another departure from Marwat practise is first found in the Thal "kannahs" or grants to leading men are not uncommon.

Finally it is impossible to omit mention of the Michenkhel Sarhangs in a description of the Thal tenures. These are the oldest settlers in the Thal and live in four villages of the Tandoba Circle on the left bank of the Kurram. In the troubled times which preceded the award of 1857 their sacred character preserved them from molestation, but at the last Settlement they admitted themselves to be mortgagees of the Musakhel Marwats who live below the Bhitanni range.

The actual mortgage transactions are over 200 years old, but the Michenkheis made no attempt to repudiate them. Occasionally the Marwat owners appear and take "ziyatob" or an increase of mortgage money. If the occupant cannot pay this and any one else will, the Marwat owner dispossesses him.

Thus the Marwats are for the most part self-cultivating proprietors holding their estates on the bhayachara system. The zemindari and pattidari systems still survive, but are rapidly being replaced by the bhayachara.

31. The following table exhibits the average number of cultivated acres per holding, per owner and per male, by circles and for the whole tahsil:—

CIRCLE.	AVERAGE AREA IN ACRES PER HOLDING.		AVERAGE AREA IN ACRES PER OWNER.		Number of cultivated acres per male (Census 1901).
	Last Settle- ment	Now.	Last Settle- ment.	Now.	
Shiga	7.5	7.2	6.0	7.2	9.9
Gadwad	8.4	8.9	6.6	6.2	5.8
Tandoba	7.2	7.7	4.3	5.4	3.8
Nar	15.4	10.8	11.2	8.8	3.4
Tahsil ...	7.9	7.8	6.0	6.7	6.6

The most striking feature in the above tables is that 33 per cent. of the whole cultivated area is mortgaged; but a comparison of the present figures with those of the last Settlement robs them of their startling character. In 1878 35·6 per cent. of the total cultivated area was under mortgage, 27 per cent. of the mortgaged area was then held by zemindars and 27 per cent. is now in their hands. Owing to the system on which the tribal lands were allotted, holdings are so scattered that owners have been compelled to mortgage their holdings in exchange for land more conveniently situated. There are instances in which whole tribes have mortgaged large areas allotted to them in the original partition of Marwat. These transfers are rather of the nature of exchanges than of one-sided alienations and afford no indication of indebtedness. It is very different in the case of alienations to money-lenders. The area mortgaged to money-lenders has doubled since 1878, and despite the increase in cultivation, the area now in the hands of money-lenders stands at 11 per cent. of the total area as against 8·1 per cent. in 1878. Money-lenders have also purchased 7,305 acres or 2·1 per cent. of the total cultivated area since Settlement.

In the Tank Tahsil of the Dera Ismail Khan District the percentages of the total cultivated area in the hands of money-lenders through mortgage and sale are 14 and 4 and in the Teri Tahsil of Kohat 6 and 1, respectively, so that Marwat may be said to stand midway in order of indebtedness between the tahsils which lie on either side of it. It is curious to notice that the percentage of the cultivated area mortgaged to money-lenders in the Shiga Circle is 10 and in the Thal Circle of Teri, which marches with it, the figure is 9, while in the Gadwad Circle, which lies next the Tank Tahsil, the percentage is 13·3.

In the Nar Circle neither mortgages nor sales are of any real significance. Extravagance has impoverished a few landowners, and absentee landlords sometimes prefer to transfer their estates rather than attempt to manage them from a distance. On the whole the proprietors are well-to-do, and those who are in debt have only their own extravagance to thank for their embarrassment.

In the Tandoba Circle the indebtedness of the proprietors is not in any way serious. The landowners, who have profited by the construction and extension of the Baran canals, are the most prosperous in Marwat. Money-lenders have practically no hold on the best half of the circle. On the left bank of the Kurram their influence has always been great. Absentee proprietors have mortgaged largely to them, and in many cases they have displaced the poverty-stricken Michenkheles, who have fallen from the position of mortgagees to that of tenants.

In the barani circles the high percentage of the cultivated area under mortgage does indicate poverty and indebtedness. It is impossible to ride through the villages without being struck by the poverty of the people. Their clothes are ragged and scanty, their food is coarse, their houses are often mere wattle huts. They have no cattle; most of them are in debt, and the usual rate of interest is 25 per cent. There was at one time every reason to apprehend that the bulk of the land would pass out of the hands of the cultivators, and it was to prevent this consummation that the Land Alienation Act was applied to the district. It is as yet too early to gauge the measure of success the Act will attain, but the general consensus of opinion is in its favour. As to the causes of the general indebtedness of the barani tracts marriage expenses, litigation and extravagance account for a certain proportion of the whole, but the main cause is undoubtedly the uncertainty of the harvests, more especially in the Gadwad Circle, and the absolute dependence of the zemindars on their crops. These figures are the strongest argument in favour of a fluctuating assessment, but this question will be discussed later.

Both, consideration money and the price of land, have been rising since the last Settlement. In every circle but Tandoba the average price paid by money-lenders is higher than the average price paid by zemindars. As a rule the sums paid by money-lenders do not represent *bonâ fide* cash transactions but include old debts, principal and interest. Purely fictitious prices are also given to defeat pre-emption. It is thus only natural to find the prices paid by money-lenders higher than those paid by zemindars, but in the Tandoba Circle money-lenders' transactions are, for the most part, confined to the less valuable lands on the left bank of the Kurram, while zemindars have been dealing in the better class of land irrigated by the Baran canals. It is, therefore, to the prices paid by zemindars

that we must look to ascertain the real selling value of the land. The highest price recorded in the above tables is Rs. 87 per acre in the Tandoba Circle. This represents the value of the better land irrigated from the Baran canals.

It is necessary to go back to the period 1890-1897 when the area irrigated by these canals was very limited to obtain an idea of the selling value of the land irrigated from the Kurram. The average price was then Rs. 44.

In the Nar Circle the average price per acre, 1897-1905, has been Rs. 71, in the Shiga Rs. 46, and in Gadwad Rs. 51. These prices represent very fairly the selling value of the land, except that in the barani circles the worst land finds no purchaser. In the Gadwad Circle there have been practically no sales of the stiff clay lands entirely dependent on the rainfall. For the barani circles, as a whole, the average value of the land per acre is something less than the recorded sale price. The price of the best land in Tandoba is 174 times and of the worst land 88 times, the average parts of the last Settlement, in Nar, Shiga and Gadwad the multiples are 110, 100 and 132, respectively. It is as yet impossible to say how far the selling price of land will be lowered by the Land Alienation Act. Though the above prices represent the sums heretofore paid by *bonâ fide* zemindars for land, there can be no doubt that the exclusion of Hindu capitalists from competition must tend to lower the price of land in the open market. This result will be more marked in the barani than in the irrigated circles. In the latter zemindar capitalists are more numerous; the conditions of agriculture are not so precarious; there is not the same poverty, and the small landowner is less likely to be driven to part with his land at a loss.



PART IV.—SYSTEM OF AGRICULTURE AND CROPS.

23. Details of the cultivation for the last six years are given in Statements II and III. The ropping for this period is given in the following

Shiga Circle.

table :—

Soil.	AREA OF MATURED CROPS.									Percentage of total crops matured on various soils.
	1899-1900.	1900-01.	1901-02.	1902-03.	1903-04.	1904-05.	Average of six years.			
							Kharif.	Rabi.	Total.	
Rodkahi	1,453	2,667	1,236	1,843	3,725	2,395	1,320	900	2,220	1.9
Barani	1,679	2,915	1,374	2,791	4,544	4,087	895	2,000	2,895	2.3
Shiga Khatina	8,489	13,418	7,671	14,274	15,365	14,066	511	11,803	12,314	10.3
Shiga	75,707	1,11,121	55,396	108,988	134,604	128,655	3,589	98,872	102,411	85.5
Total	87,838	130,121	65,677	127,896	158,838	149,167	6,265	113,575	119,840	100.0
Kharaba	54,161	38,091	83,754	39,773	15,343	23,871	6,303	35,862	42,165	*26.0
Dofasli	61	5	4	28	8	14	...	20	20	...

* Of total sowings.

89 per cent. of the cultivated area is sown on an average every year—7 per cent. in the kharif and 82 per cent. in the rabi; 50 per cent. of the sown area fails in the kharif and 24 per cent., in the rabi. With its light rainfall, sandy soil and inefficient hill torrents the circle is ill adapted to a kharif crop. In most cases bajra, the principal kharif crop, is grown merely for change of diet. The outturn is invariably poor. I may say here that it is this demand for change of diet and the general poverty of the kharif crop which keeps the price of bajra so high throughout the district. The rabi is all important in this tract; wheat occupies 48.4 of the total area matured and gram 44.8. If one may rely on the crop statistics, the most remarkable feature of this purely barani circle is that the area sown and the area matured vary so little from year to year. The average rabi cropping for the last eighteen years is compared in the following table :—

YEARS.								Area sown.	Area matured.
1888-1893	...	...	...	...	...	...	...	138,913	113,931
1894-1899	...	...	...	...	...	...	...	139,350	115,093
1900-1905	...	...	...	...	...	...	...	149,437	113,573

A year without sowings is unknown.

In no single year during the last eighteen have rabi sowings ever fallen below 72 per cent. of the cultivated area. In the same way only on two occasions, 1892, 1902, has the proportion of failure to the area sown been as high as 50 per cent. For a barani tract in a district of short rainfall the circle appears surprisingly secure. There is no doubt that the sandy soil of this circle is more retentive of moisture than the stiff soils of Northern Marwat. Less rain is required for ploughing and less rain to ripen the crop. In fact a zemindar of North-West Marwat will always open a discussion as to his resources, by saying "Those who have Shiga lands always get a crop while we!—"

At the same time I have no hesitation in saying that the figures convey far too favourable an impression of the security of the tract. In 1902 there was no rain between September and March, and less than one inch between September and May. Yet the annual returns show 65,677 acres coming to maturity.

It is inconceivable that 45 per cent. of the sown area should have survived such a drought. My own experience in the Thal at any rate is that not only has the area matured been exaggerated but also the area sown. Owing to the vest system, whether surviving or extinct, the field of the ordinary Shiga village is a long, narrow strip, sometimes a mile in length and only a yard in breadth, and it is difficult for a patwari with the best intentions to allow for failure in such a circle. Further, owing to increase of cultivation, the staff of patwaris has been inadequate for girdawari work. It is a sufficient comment on the unsatisfactory nature of our statistics that in the better villages of Southern Marwat the percentage of failure, 1899-1905, has been 27 in the rabi and 54 in the kharif, while in the indifferent Thal villages, the recorded percentages are 14 and 39, respectively. It is true the Thal tract now and again gets rain from the Bhongikhel hills which misses Southern Marwat, but there is only one real explanation of such a discrepancy—incorrect statistics over at least 23 per cent. of the cultivated area of the circle. Another and perhaps the most important source of error, has been the date of the girdawari. Until 1902 crop inspections began on 1st March. As the wheat crop does not mature till the end of April, it follows that in dry seasons much of the crop recorded as matured in reality failed to reach maturity.

34. The cropping from 1899 to 1905 is given in the following table:—
Cultivation in the Gadwad Circle.

Soils	AREA OF MATURED CROPS.									
	1899-1900.	1900-01.	1901-02.	1902-03.	1903-04.	1904-05.	Average of six years.			Percentage of total crops matured on various soils.
							Kharif.	Rabi.	Total.	
Rodkahi	3,726	11,623	7,497	13,654	17,615	8,627	3,607	6,850	10,457	23.3
Barani	6,372	13,007	6,572	12,378	15,693	12,450	4,357	6,721	11,078	24.7
Shiga Khatina	189	2,268	851	2,853	2,550	3,246	84	1,909	1,993	4.5
Shiga	8,261	26,692	12,044	25,524	29,224	26,233	1,044	20,286	21,330	47.5
Total	18,551	53,590	26,964	54,409	65,082	50,556	9,092	35,766	44,358	100.0
Kharaba	16,782	24,574	33,265	22,961	18,183	9,540	7,208	13,677	20,885	*32
Dofasli	34	6	3	7	15	7	...	12	...	...

* Of total sowings.

The north of the circle is a stiff clay, the south a light sandy soil similar to the Shiga Circle. Only one-third of the total area is cultivated. Barren hills, ravines and banjar make up the rest. The rainfall in this circle is slightly less than in Shiga. Stiff soils, dependent on their own rainfall, are practically valueless, and the barani lands of the circle are so placed as to receive the drainage from higher lying waste. The harvests on such lands are the most precarious in Marwat. On an average 30 per cent. of the barani area is sown in the rabi and 25 per cent. in the kharif, and of the sown area 31 per cent. fails in the rabi and 47 per cent. in the kharif. The rodkahi varies in quality according to the torrent on which it depends and the position it holds in the order of irrigation. The upper lands on such torrents, as the Nugram and Kharoba, rarely fail to yield a crop, and the outturn per acre is the heaviest in the tahsil. On the other hand, failure on the smaller torrents or on the lower lands, even of the Nugram and Kharoba, is unfortunately common, and the outturn is never in any way remarkable. On rodkahi lands 32 per cent. of the cultivated area is sown in the rabi and 22 per cent. in the kharif, and of the sown area 21 per cent. fails in the rabi and 37 per cent. in the kharif. The poorer rodkahi lands are little, if at all, superior to the barani of the circle.

On an average 77 per cent. of the total cultivated area of the sandy soils is sown in the rabi and 6 per cent. in the kharif: 28 per cent. of the sown area fails in the rabi and 49 per cent. in the kharif. Thus the cropping is very much the same as in the old established villages of the Shiga Circle. The only important difference is that in Shiga 85 per cent. of the cultivated area is sown every year, in Gadwad only 77. This I attribute to the rainfall in Gadwad being even less than in Shiga. The remarks concerning the under-estimate of failure in Shiga apply, *mutatis mutandis*, to the sandy soils of Gadwad. Wheat forms 45 per cent. of the total matured area of the circle, gram 31 per cent., bajra 12 per cent., jowar 3 per cent., and moth 2 per cent. The kharif crops are practically confined to barani and rodkahi soils. In the rabi the proportion of gram and wheat on sandy soils is almost equal; on barani the proportion of wheat to gram is as three to two, and on rodkahi as four to one.

35. The following table shows the cropping during the selected period :—
Tandoba Circle,

SOILS.	AREA OF MATURED CROPS.									Percentage of total crops matured on various soils.
	1899-1900.	1900-01.	1901-02.	1902-03.	1903-04.	1904-05.	Average for six years.			
							Kharif.	Rabi.	Total.	
Nahri dofasli	4,937	5,174	5,377	5,900	5,286	5,633	2,079	3,308	5,385	15.0
Nahri ekfasli	20,906	21,569	21,487	23,887	25,456	24,317	4,751	18,186	22,937	63.9
Rodkahi	149	422	143	654	537	372	159	221	380	1.0
Barani	853	1,445	578	2,294	2,588	908	422	1,023	1,445	4.0
Shiga Khatina	328	448	389	534	605	794	9	507	516	1.1
Shiga	4,336	5,188	2,397	6,086	6,378	6,951	36	5,184	5,222	15.0
Total	31,509	34,216	30,371	39,355	40,850	38,975	7,458	28,427	35,885	100.0
Kharaba	4,994	4,956	7,447	2,961	2,499	1,183	1,171	2,835	4,006	*10.0
Dofasli	485	424	747	299	147	155	2	364	366	...

* Of total sowings.

In this circle 91 per cent. of the cropping in the kharif and 75 per cent. in the rabi is on irrigated soils. In the rabi, on the sandy soils dependent on rainfall, only 17 per cent. of the sown area is shown as having failed to mature. The sandy soils of this circle compare most unfavourably with the sandy soils of Southern Marwat, where the percentage of failure is 24 per cent. and over. There is no doubt that kharaba has been greatly under-estimated in these tracts. Wheat and gram as usual are the main crops on shiga soil. During the last few years there has been a steady increase in the irrigated area matured corresponding to the extension of the private canals. The lands irrigated by the private canals are still fresh and fine crops of maize, wheat and barley are raised on them, but there are already signs of deterioration, and more careful cultivation will be necessary if the present standard of cropping is to be maintained. Of the land irrigated by the Kurram canals the right bank lands are all inferior and no good crops are ever seen on them. The left bank villages are better off. Fine crops of jowar and bajra may be seen on these lands, but "kallar" crops up in every direction, and the upper canals have been closed owing to the deterioration of the soil under the influence of the saline deposits from the Kashu.

Lands under the Kachkot and the Landidak are on the tail of those canals; and if there is any deficiency in the supply they are the first to suffer. The shares in the Kachkot are most of them "afzud." The Tandoba villages only get water for the rabi and that not till 1st December. Of the other canal systems the Lashti is the best, the crops here ranking with those of the private canals.

36. The cropping from 1899 to 1905 is given in the following table:—

SOILS.		AREA OF MATURED CROPS.									
		1899-00.	1900-01.	1901-02.	1902-03.	1903-04.	1904-05.	Average of six years.			Percentage of total crops matured on various soils.
								Kharif.	Rabi.	Total.	
Nahri Ektasli	...	11,892	13,078	8,380	11,204	13,242	13,287	2,896	8,951	11,847	88·97
Shigga	...	1,487	1,485	546	1,758	1,835	1,703	2	1,467	1,469	11·03
Total	...	13,379	14,563	8,926	12,962	15,077	14,990	2,898	10,418	13,316	100·0
Kharaba	...	1,644	1,816	5,340	1,884	506	130	1,280	484	1,764	*11·7
Dofasli	...	..	1	10	13	...	1	...	4	4	...

* Of total average sowing of six years.

Practically the whole irrigated area is sown every year, 22 per cent. in the kharif and 78 per cent. in the rabi. On irrigated lands 14 per cent. of the sowings fail to mature in the kharif, 11 per cent. in the rabi. On unirrigated lands there is no kharif and 16 per cent. of the sowings fail to mature in the rabi. The latter figure is clearly wrong. On the best Shiga lands in Marwat the percentage of failure is 27 and the Shiga of Nar is among the worst of its kind in the tahsil. Otherwise the above figures may be taken as fairly representing the average harvests of the circle.

The principal crops are wheat 54·7 per cent., maize 19·3 per cent., gram 8 per cent., and barley 7·3 per cent. Maize is grown only on irrigated lands, gram only on unirrigated. The irrigated land is a fairly stiff clay, which only requires a more regular supply of water to produce better crops. The Shiga consists of sand dunes and hummacks and, like all the land on the Kurram banks, yields a very light outturn. The maize crop is the poorest imaginable. It is sown late and starved for water during the dry months, September, October and November. In the same way much of the wheat on irrigated lands is not sown till the afzud channels are opened in December.

37. The following tables show the rainfall and the cropping for the six years on which the produce estimate is based:—

RAINFALL.

YEARS.	April.	May.	June.	July.	August.	September.	October.	November.	December.	January.	February.	March.	Total.
1899-1900	·12	·08	1·91	2·57	1·25	·83	..	..	·02	1·31	·10	·65	8·8
1900-01	1·87	1·35	·29	2·87	1·59	·45	..	·07	·53	1·00	·72	·62	11·3
1901-02	·35	6·46	·13	1·53	1·56	·31	..	..	..	..	·01	·37	10·7
1902-03	·18	·27	·86	1·52	2·45	·68	·30	..	..	·30	..	2·31	8·8
1903-04	1·16	2·14	·46	1·23	3·78	1·47	..	..	·16	1·07	..	4·21	15·6
1904-05	·03	·02	·07	3·13	2·40	1·12	..	·14	·07	1·74	1·10	2·12	11·9
Total	3·71	10·32	3·72	12·85	13·01	4·86	·30	·21	·78	5·42	1·93	10·28	67·3
Average	·62	1·72	·62	2·14	2·17	·81	·05	·04	·13	·90	·32	1·71	11·2

Table showing area sown, cropped and failed, during the last six years.

Tahsil.	Year.	AREA SOWN.				AREA CROPPED.				AREA FAILED.				PERCENTAGE OF AREA FAILED TO AREA SOWN.			
		Kharif.		Rabi.		Kharif.		Rabi.		Kharif.		Rabi.		Kharif.		Rabi.	
		Irrigated.		Unirrigated.		Irrigated.		Unirrigated.		Irrigated.		Unirrigated.		Irrigated.		Unirrigated.	
MARWAR	1899-00	9,027	16,250	32,184	170,885	7,065	4,995	30,264	108,453	1,960	11,255	1,920	62,442	22	69	6	37
	1900-01	10,852	42,526	82,892	213,487	8,952	21,572	30,646	171,348	1,901	20,954	2,243	42,189	18	49	7	20
	1901-02	10,232	26,048	32,266	193,172	9,285	11,516	25,925	85,262	1,923	14,532	6,341	107,910	10	56	20	56
	1902-03	12,787	37,520	30,834	220,560	11,701	21,109	29,118	172,684	1,086	16,411	1,716	47,866	8	44	6	22
	1903-04	12,303	33,766	32,926	231,351	11,529	26,086	32,168	209,154	774	12,770	758	22,197	6	32	2	9
	1904-05	9,964	17,968	33,899	223,570	9,787	9,817	33,518	200,567	177	8,151	381	26,009	2	45	1	11

Table showing area of matured crops by circles in the Marwar Tahsil during the last twelve harvests.

Year.	SHICHA.			GADWAD.			TANDOBA.			NAR.			TAHAIL.		
	Kharif.			Rabi.			Total.			Kharif.			Rabi.		
	Total.			Total.			Total.			Total.			Total.		
1899-1900	1,923	85,415	87,338	2,879	15,672	18,551	4,856	26,653	31,509	2,402	10,977	13,379	138,717	12,060	150,777
1900-1901	9,181	129,938	139,119	11,534	41,756	53,290	6,764	27,452	34,246	2,745	11,818	14,563	201,994	30,524	232,518
1901-1902	3,609	62,038	65,677	7,623	19,341	26,964	7,101	23,270	30,371	2,418	6,508	8,926	111,187	20,751	131,938
1902-1903	7,669	120,227	127,896	12,805	41,304	54,409	8,876	30,479	39,355	3,460	9,502	12,962	201,812	32,810	234,622
1903-1904	11,197	147,641	158,838	13,754	51,328	65,082	10,268	30,482	40,860	3,206	11,871	15,077	241,322	38,525	279,847
1904-1905	3,407	145,161	148,568	5,659	44,397	50,056	6,783	32,192	38,975	3,155	11,835	14,990	234,085	19,604	253,689
Average	6,265	113,575	119,840	9,192	35,766	44,875	7,458	28,427	35,885	2,898	10,418	13,316	186,202	25,712	213,914

1899-1900.—Owing to insufficient floods in the Kurram and Baran the kharif crop on irrigated lands for 1899 was one of the worst on record. The area sown was considerably below the average, and the area recorded as failed reached the extremely high figure of 22 per cent.

On irrigated lands the rabi was very fair, the area sown being normal, and the percentage of failure only 6 per cent.

On unirrigated lands the rainfall was deficient in March, April and May, the kharif crop was not sown till June. Rain in July, August and September was deficient, 4.65 inches as against an average rainfall for the period of 7.14. The results were generally disastrous. Of the very small area sown 69 per cent. failed.

The rabi fared little better. Owing to the deficiency of summer rains sowings were much restricted. Though good rain was received in January, it did not come till the 17th. The Marwat crops can generally hold out till February, but on this occasion they could not do so owing to want of proper saturation of the soil in the summer. In February there was practically no rain, and in March only .65; 37 per cent. of the sown area failed.

1900-1901.—The kharif on irrigated lands was again a poor one for the same reason as in 1899; 18 per cent. failed. The rabi was average.

On unirrigated lands there was good rain for kharif sowings in April and May. The area sown was the largest on record, but again August and September rains were below the average, and the failure amounted to 49 per cent.

The rabi, though not good, was distinctly more fortunate than in the previous year. The area sown was larger than might have been expected from the summer rains. Good rain in January and February was followed by a poor rainfall in March; 20 per cent. is recorded as failed; but six inches of rain in May, when the rabi was being harvested, probably ruined much of the crop recorded as matured.

1901-1902.—The kharif on irrigated lands was normal as regards sowings and failure; 10 per cent. failed.

As regards unirrigated lands, there was little rain in March and April and too much in May. Sowings were not extensive, rain was in defect from May onwards, and 56 per cent. of the kharif failed.

Rabi sowings were a little below the average. There were no winter rains and no snow on the hills. The failure on irrigated soils was 20 per cent. and on unirrigated 56 per cent. The latter figure must be an under-statement of the case. The hardy Marwat crop survived the girdawari to wither later on. Rabi 1902 was the worst harvest on record in Marwat, and the waste of seed must have been enormous.

1902-1903.—The kharif on irrigated lands was distinctly good in both area and outturn. On unirrigated lands there was practically no rain for early sowings, but unusual rain in September and October just saved the situation, and only 44 per cent. kharif failed.

The rabi on irrigated lands was good, but sowings were somewhat below the average. The winter rains were very late. From November to March only .30 was recorded in Marwat. On unirrigated lands sowings had been above the average, owing to good rain in August, September and October. It says much for the tenacity of the Marwat crops that only 22 per cent. failed. Heavy rain in March saved 78 per cent. of the sown area.

1903-1904.—The kharif on irrigated land was even better than the previous year. On unirrigated lands heavy rains in March allowed extensive sowings. The summer rains were good and the failure only came to 32 per cent.

The rabi on irrigated lands was excellent at the time of girdawari, but later on hot winds did some damage. On the whole the crop was good. On unirrigated lands good summer rains were followed by good winter rains. On a record area sown only 9 per cent. was recorded as failure.

1904-1905.—Owing to the deficiency of the summer rains in the hills and in the district, canals were running low and the hill torrents did not come down in flood at the time of kharif sowings, with the result that the area sown on both irrigated and unirrigated lands was less than in any year since 1899. From September on the canals were very full, while the area to be irrigated was below normal. Only 2 per cent. of the irrigated area sown failed. The kharif crop on unirrigated lands, however, fared badly. Though 1.12 inches of rain were recorded in Lakki, where there is no kharif during September, Western Marwat, where the kharif crop is grown, did not get this rain, and 45 per cent. of the crop failed.

The canals were working well during the autumn and rabi sowings were the most extensive on record. With good winter rains and heavy snow on the Safed Koh conditions were favourable right up to reaping. Only 1 per cent. of the crop is recorded as failing to come to maturity on irrigated lands. On unirrigated lands the failure of the rains and hill torrents in Western Marwat rendered sowing on the stiff clay soils out of the question. The sandy lands in Southern and Eastern Marwat were all sown and the total sown area was only second to 1904. From January onwards there was good rain, and though in February it seemed as if the gram crop had been blighted by the frost, the plants revived and put forth fresh shoots under the influence of the rain. The area which failed to mature was only 11 per cent. and the general outturn was very good.

The following table exhibits the character of the twelve harvests on irrigated and unirrigated soils according to the gidawaris. The previous paragraphs show where the girdawari is at fault :—

IRRIGATED SOILS.

Harvest.	1899-00.	1900-01.	1901-02.	1902-03.	1903-04.	1904-05.
Kharif	Bad ...	Poor ...	Average ...	Good ...	Good ...	Area below average, crop above average.
Rabi	Average ...	Average ...	Bad ...	Average ...	Good ...	Bumper.

UNIRRIGATED SOILS.

Harvest-	1899-00.	1900-01.	1901-02.	1902-03.	1903-04.	1904-05.
Kharif	Bad ...	Poor ...	Bad ...	Fair ...	Fair ...	Bad.
Rabi	Bad ...	Average ...	Very bad ...	Average ...	Bumper ...	Bumper on sandy soils, failure on stiff soils.

It will be seen from above that the distribution of good and bad crops during the period selected is very even, except in the case of the kharif crop on unirrigated soils. Considering the rainfall statistics for Kharif 1903, from March to September, and the fact that the percentage of failure amounted to 32 per cent. on unirrigated soils, the only conclusion at which one can arrive is, that a matured area of 68 per cent. constitutes a bumper crop for the soil, climate and country. It is a difficult thing to choose a cycle which represents a fair average for every crop and soil. The present cycle has been chosen on the ground of the greater accuracy of the later girdawaris; but in framing assessments from the produce estimate it is necessary to remember that the rabi crops on unirrigated soils have of late years been the best on record, and that in the earlier years, owing to the date of the girdawaris and the inadequate staff of patwaris, the area that failed to reach maturity has been much under-estimated.

38. In all some 200 crop experiments have been carried out in the Marwat Tahsil from Kharif 1903 to Rabi 1905.

Crop experiments.

The average experiment covered an acre in extent. A statement, showing the accepted experiments, is given in Appendix A. It must be noted that the harvests under experiment have been exceptionally good, and that, in many cases fields, were selected for experiment which were much superior to the average crops of the soil and circle.

39. The chief crops grown and the percentages of the matured area are given in the following table:—

Outturn assumed.

Circle.	Rice.	Maize.	Jowar.	Bajra.	Moth.	Mung.	Cotton.	Wheat.	Barley.	Gram.	Sarshaf.	Tobacco.	Fodder crops.	Total.	Other miscel- laneous crops.
Shiga	2	2.7	6	...	...	48.4	1	44.8	...	...	...	97.7	2.3
Gadwad	3.4	12.4	2.3	...	...	45.3	2	31.7	...	...	1	93.1	3.9
Tandoba	4	13.2	3.1	3.5	2	...	51.9	6.7	9.4	2.6	1	2.9	94.2	5.8
Nar	19.3	7	1.3	...	...	...	54.7	7.0	8.3	7	2	4.7	97.3	2.7
Tahsil ...	1	3.4	1.4	4.8	8	2	1	48.8	2.1	33.8	5	...	8	96.8	3.2

Wheat, barley, gram, maize, bajra and jowar in all occupy 94.3 of the total area matured. The main crops and the outturns assumed on the principal soils are given in the following table:—

Crops.	Circle.	Soil.	Produce per acre in maunds.	Crops.	Circle.	Soil.	Produce per acre in maunds.
Wheat ...	Nar	Nahri	6	Maize ...	Tandoba	Nahri dofasli	10
		Shiga	8½			Do. ekfasli	9
	Shiga	Rodkahi	6		Nar	Nahri	6
		Barani	4				
		Shiga khatina	5	Jowar ...	Shiga	Barani	3
		Shiga	4			Shiga	3
	Gadwad	Rodkahi	8		Gadwad	Rodkahi	5
		Barani	5			Barani	4
		Shiga khatina	5		Tandoba	Nahri ekfasli	9
		Shiga	4				
	Tandoba	Nahri dofasli	9	Bajra ...	Shiga	Rodkahi	4½
		Do. ekfasli	7			Barani	3
		Barani	4			Shiga khatina	4
		Shiga khatina	5			Shiga	3
		Shiga	4		Gadwad	Rodkahi	5
Barley ...	Shiga	Shiga	5			Barani	4
						Shiga	3
	Tandoba	Nahri dofasli	10		Tandoba	Nahri dofasli	8
		Do. ekfasli	8			Do. ekfasli	7
	Nar	Nabri	8			Barani	4
Gram ...	Shiga	Rodkahi	6		Nar	Nahri	4
		Barani	5				
		Shiga khatina	5	Moth ...	Gadwad	Rodkahi	4
		Shiga	5			Barani	3
	Gadwad	Rodkahi	8			Shiga	2
		Barani	6		Shiga	Rodkahi	3½
		Shiga khatina	5			Barani	3
		Shiga	5			Shiga khatina	3
	Tandoba	Barani	6			Shiga	2
		Shiga	5	Mung ...	Gadwad	Barani	2
	Nar	Shiga	4				
Sarshaf ...	Tandoba	Nahri dofasli	6				
		Do. ekfasli	6				

No satisfactory comparison can be instituted between the outturns assumed at the last Settlement and those given in the table above. At the last Settlement the soil classifications were different to those now adopted, and the outturns then assumed represented the average gross yield of an acre in a cycle of years, allowance being made for more or less complete failure of a certain number of harvests in a cycle. Further the outturns used in the produce estimate represented the average yield of an acre in the circle irrespective of soil classifications. Thus, in the Shiga Circle, Mr. Thorburn assumed the outturn of wheat to be 3 maunds 30 seers, 2 maunds 20 seers and 1 maund 15 seers on first, second and third class soils, respectively. In the produce estimate 2 maunds 25 seers 14 chattaacks were

taken as the average outturn of soils of all classes in the circle. It was estimated that every cultivated acre would yield this average annual outturn in a cycle of years. A comparison with these figures can serve no useful purpose.

40. Wheat is the most important crop grown in the tahsil occupying 48·8 per cent. of the total cropped area.

Rabi crops—wheat.

The variety grown in Marwat is a hard red wheat similar to the Khattaki. The wheat grown on the sandy soils is of a superior quality and fetches a slightly higher price than wheat grown on irrigated lands. Sowing continues from the middle of October to the end of December. The sooner the seed is in the ground the better the crop. Drill sowing is universal, and the quantity of seed ranges from 30 to 43 seers an acre. The stiffer the soil the greater is the quantity of seed required. Reaping begins about the end of April and continues till the third week in June. The wheat grown on the sandy soils covers the largest area in Marwat: 5 maunds have been assumed as the outturn on Shiga khatina and 4 maunds on Shiga. Experiments on 18 acres of Shiga showed an outturn of from 11 maunds and 7 seers to 3 maunds and 24 seers and an average of 6 maunds and 18 seers. The corresponding figures on Shiga khatina, over 5 acres under experiment, were 7 maunds and 32 seers to 5 maunds and 23 seers, and an average of 6 maunds and 6 seers. Shiga khatina is a better soil than Shiga, and the minimum outturns give a better idea of the relative value of the two soils than either the maximum or average. In assuming the yields given in the table above, I have been further guided by figures obtained from the books of Hindu landowners at Lakki. These show the average receipts in grain of men taking a fixed share of the gross produce. The receipts have been compared with the girdawaris for the last six years and the gross produce per acre calculated from the proportion taken by the landlord. It has been found that the gross produce on 2,419 acres matured has been 10,113 maunds, or 4 maunds and 7 seers per acre. In this calculation no distinction has been drawn between Shiga and Shiga khatina, but the results are most valuable, as no previous notice was given to the parties concerned; the entries go back for some time, and therefore complete reliance may be placed on them. With these facts to go upon, the assumption of 5 maunds and 4 maunds for Shiga khatina and Shiga, respectively, appears fairly accurate.

On irrigated lands the outturn varies with the system of irrigation. In the Nar Circle the assumption of 6 maunds is supported by the crop experiments. In the Tandoba Circle the outturn on land irrigated from the Baran Canals is from 9 to 12 maunds, while on land irrigated by the tail of the Kachkot or the brackish Kurram Canals, the yield is something less than in the Nar, *i. e.*, under 6 maunds: 7 maunds has been taken as the average outturn on ekfasli and 9 maunds on dofalsi.

Rodkobi varies very much in quality. The heaviest outturns in the district are obtained in the Saroba villages on the Kharoba and Nugram torrents, while the yield in the Paina villages is in no way remarkable. The experiments have all been made in Saroba villages and bring out the high average of 13 maunds: 8 maunds represent the average outturn of Saroba and "Paina" villages together. Barani is the poorest soil in Marwat; but when the crop does mature, the outturn is very much the same as on Shiga.

Next to wheat gram is the most important crop in Marwat, occupying 33·8 of the total matured area. Gram is

Gram.

mostly grown on the sandy soils, but both nahri and rodkobi yield a heavier outturn. Sowings are generally begun and completed in October. Drill sowing is general. The quantity of seed varies from 16 to 24 seers per acre. Gram ripens about fifteen days before wheat, and the greater part of the crop is reaped before wheat harvesting begins. On the sandy soils gram is rotated with wheat, as it does not exhaust the soil to the same extent as the more valuable crop. The poorest crops are those grown on the sandy hummocks along the banks of the Kurram. The Shiga in the Nar is all of this description, and only 4 maunds have been assumed in this circle. As a general rule the outturn of gram is heavier than the outturn of wheat. In the Shiga and Gadwad Circles I have again been guided by the figures taken from the Hindus' books. These show the gross produce on 2,449 acres matured, 1899-1905, to have been 13,466 maunds, or 5 maunds 19 seers per acre. The assumption of 5 maunds on both Shiga and Shiga khatina is fully supported by the above figures.

Barley occupies 2.1 of the total matured area and is grown chiefly on irrigated lands. The cultivation of this crop proceeds on the same lines as that of wheat, but less seed grain is required, and the crop is sown earlier and ripens ten days sooner than wheat. As a rule barley is sown when the land is too exhausted for wheat. Eight and 10 maunds have been assumed in the Tandoba Circle, where most barley is grown.

41. Bajra is the most important of the kharif crops, occupying 4.8 per cent. of the total matured area. It is grown chiefly on the stiff rodkahi and barani soils of the Gadwad Circle and on the lands irrigated by the lower Kurram canals in the Tandoba Circle. In the Shiga Circle it is simply grown by the zemindars as a change of diet and the yield is very poor. The sowing season is from the middle of March to the end of July. The land is generally ploughed two or three times before sowing. The seed is scattered broadcast mixed with sand. After sowing the land is ploughed again. Bajra sown in March ripens in July; bajra sown in July ripens in October. On irrigated soils the crop is always sown in July and August, ripening in October and November. The outturns assumed for irrigated lands in Tandoba are 7 and 8 maunds. Very fine crops are raised in the Michenkheh villages, but the bajra grown on the right bank of the Kurram is very poor. Experiments covering 18 acres on the barani clay soil of the Gadwad Circle yield an average outturn of under 5 maunds. The paina rodkahi lands are little better than the barani. Five maunds have been assumed for rodkahi and four for barani.

This crop occupies 1.4 per cent. of the total matured area. The locality in which it is grown, the method of cultivation and the outturn per acre are practically the same as for bajra. Irrigated jowar is grown chiefly in the Michenkheh villages and the outturn is high; 9 maunds have therefore been assumed as against 7 and 8 for bajra. Much of the jowar is cut green for fodder.

Maize is grown only in the irrigated circles. Practically all the maize in Marwat is grown on land watered by the Kachkot or Baran canals. Sowings are from 21st July to 4th September and the crop ripens from 15th October to 15th December. Much of the maize on the Kachkot is sown late, ripens late and suffers from lack of water in October and November; the result being that the outturn is extremely poor. On the Baran canals sowings are more timely and the supply of water more plentiful. The cultivation in both cases is slovenly from start to finish and the grain is trodden out by cattle instead of being threshed as in the Bannu Tahsil. The local seed has much deteriorated and efforts are being made to introduce American varieties. Nine and ten maunds have been assumed for Tandoba and six maunds for Nar. The latter is a very low figure, but it is more than borne out by crop experiments. I may add here that Nar maize is so inferior that it often sells much below the Bannu market rate. I have seen Nar maize selling at 40 seers the rupee.

42. Wheat straw is the staple fodder of the tahsil all the year round. In the canal circles it is always plentiful and in Southern and Eastern Marwat, after a series of good harvests, the stock is larger than the people can consume or dispose of. After three good rabi harvests wheat straw in August 1905 was selling at 9 maunds the rupee, and the stocks of past harvests were rotting on the ground. The fact that the Marwats of the sandy tracts commonly sell their plough cattle every winter is due rather to the difficulty of watering the animals than to any want of fodder. In Southern and Eastern Marwat the only variations from the wheat straw are green gram, barley, and, to a limited extent, wheat given in the spring and water melons given in November and December. In the Gadwad Circle bajra and jowar straw are used to supplement wheat straw during the winter months. It is noticeable that bajra and jowar straw are not chopped up fine here as in other districts, but given whole. In the canal circles maize straw is also given during this period, and during March and April shaftala, which is largely grown as fodder, is given almost exclusively. If there is fair rain in the summer grass springs up everywhere on the stiff soils and more sparingly on the

Shekhbudin range, but with such a limited rainfall grass cannot be relied on to any great extent. The only crop grown exclusively as fodder is shaftala. This is generally sown in the maize field with the last watering when the maize is still standing. On an average 600 acres are under shaftala every rabi in the Nar Circle and 1,000 to 1,500 in Tandoba. The area of the other crops cut green for fodder is difficult to ascertain, but in any case forms a very small proportion to the total cropped area.

The usual practise is for the landlord to take a share of the straw or fodder crops equivalent to the share he takes of grain. Straw and fodder crops have accordingly been included in the half net assets estimate.



PART V.—TENANCIES AND RENTS.

43. The details of cultivating
Cultivating occupancy. occupancy are —

DETAILS.					Shiga.	Gadwad.	Tandoba	Nar.	Tahsil.
Total cultivated area, 1904-05					181,704	98,513	42,223	14,856	337,396
Percentage cultivated by owners					55.2	58.4	48.1	23.9	53.9
Ditto by tenants free of rent					3.1	1.2	1.6	.2	2.2
Ditto by occupancy tenants					5.2	.2	2.8	...	3.2
(a) Paying batai with an addition in cash					4.1	17.3	2.3	2.2	7.6
(b) " " without any addition in cash					31.7	22.4	42.7	73.1	32.3
(c) " " at revenue rates, with or without mukana.					.6	.5	.3	.4	.5
(d) Paying other cash rents					.1	...	2.2	.2	.3
Percentage of cultivation cultivated by owners at last Settlement					86.3	76.1	70.8	41.8	79.4

The percentage of the area cultivated by the owners is 53.9. This proportion though higher than the provincial average, which is 48.4, is very low, considering the manner in which the land of Marwat was originally partitioned and the length of time for which the vesh system survived. In the Nar Circle tenures were originally zemindari, and there is nothing surprising in the small proportion recorded as cultivated by the owners. Were it not for the few old established villages on the banks of the Kurram, the percentage would be even less than 23.9. In the Tandoba Circle the cultivated area has almost doubled, and the irrigated area has more than doubled. At the same time the area cultivated by the owners has risen from 16,231 acres at the last Settlement to 20,340 acres in 1905. The decrease in the percentage of the area cultivated by peasant proprietors from 70.8 to 48.1 per cent. rather indicates that peasant proprietors have become landlords than that they are being dispossessed of their lands.

In the Gadwad Circle 55,386 acres were cultivated by the owners in 1878 and 57,457 acres are now cultivated by the owners. The increase of cultivation accounts for the fall in the percentage from 76.1 to 58.4 in the last thirty years. Considering the circumstances of the tract it is not so surprising that the decrease in cultivating ownership has been from 76.1 per cent. to 58.4, as that the latter is the highest percentage in Marwat.

In the Shiga Circle, the original home of the Marwats and the last stronghold of the vesh, the area cultivated by peasant proprietors has fallen from 103,839 acres to 100,127 acres, and the percentage of the total area in this class from 86.3 to 55.2, and this, despite the fact that the cultivated area has increased from 120,291 to 181,704 acres.

That the actual area cultivated by peasant proprietors has decreased during the last thirty years can only be accounted for in one way, that the poorer proprietors are losing their lands. The increase in the area held by Hindus and the disappearance of the vesh in all but a few villages all point to the same conclusion; but that this process is going on as rapidly as the figures indicate is by no means the case. The increase in the cultivated area lies chiefly in the Thal. In the Sekunderkhel and Achukhel Settlements alone the increase of cultivation amounts to nearly 30,000 acres; this land has for the most part been brought under cultivation by alien settlers and comparatively few Sekunderkhels and Achukhels have crossed the Kurram to take up their lands in the colony. If this tract, which has come under cultivation since Settlement, be left out of consideration, the percentage of cultivating proprietorship in the rest of the circle is 62.3 as against 55.2, the percentage for the circle as a whole. The dispossession of the poorer proprietors has not been going on as rapidly as the figures at first led one to suppose, but it is nonetheless serious. At the same time peasant proprietors cultivating their own farms own the greater part of the land in the average village of the circle; and a very large proportion of the area sold and mortgaged is cultivated by the alienors as tenants-at-will.

The area cultivated by occupancy tenants has largely increased since the last Settlement. Occupancy tenants are found almost exclusively in the Thal of the Shiga and Tandoba Circles. They are as a rule settlers who have broken up waste land. At the last Settlement most of the Thal "squatters," as Mr. Thorburn called them, were given occupancy rights: and the status of those squatters who had broken up land at the end of the last Settlement or subsequently was a burning question in the Thal when the record-of-rights came to be revised in 1904. Through the tact of Bhai Hotu Singh, Extra Assistant Settlement Officer, a compromise was arrived at and litigation avoided, the absentee owners voluntarily granting occupancy rights to a large proportion of the settlers. These occupancy tenants are to pay the land revenue and one-fifth of the gross produce.

44. On batai paying lands the share of the village menials is invariably deducted before the division between landlord and tenant takes place. In the following table the deductions per 100 maunds of grain made at the last Settlement are compared with those allowed in the present Settlement:—

DETAIL.										1878.	1905.
										Mds. Seers.	Mds. Seers.
Reapers	...	...	...	...	...	...	...	...	...	5 25	5 0
Blacksmith	...	...	...	...	...	...	...	...	...	1 5	1 8
Carpenter	...	...	...	...	...	...	...	...	...	1 5	1 8
Cobbler	...	...	...	...	...	...	...	...	...	0 25	0 3
Weigher	...	...	...	...	...	...	...	...	...	..	0 6
Crop watchman	...	...	...	...	...	...	...	...	...	1 10	1 7
Bismilla	...	...	...	...	...	...	...	...	...	0 15	0 5
Sweeper	...	...	...	...	...	...	...	...	...	0 15	..
Donkeys for water	...	...	...	...	...	...	...	...	...	2 0	..
Total										12 20	8 35

Reapers are generally employed and their share is one-twentieth of the crop. When there is a bumper harvest the reapers' dues in the more remote villages are sometimes as high as one-tenth and they are said to help themselves to more than their share. Even when the tenant holdings are small, as in the Nar, the landowners allow the reapers' dues, whether the crop has been reaped by hired labourers or by the tenants themselves. The dues paid to the carpenter, blacksmith, cobbler and weigher call for no special remark. Crop watchmen are generally employed where the land is cultivated by tenants as much to protect the landlords from thefts by the tenants as from cattle trespass or depredations by outsiders.

The most important difference in the kamiana allowed at the last and in the present Settlement is that whereas Mr. Thorburn allowed 2 per cent. for donkeys carrying water to the reapers in sandy tracts I have omitted this item entirely from the account. Nowadays the reapers have to find their own water and they do not get free grain for their donkeys. Throughout the tahsil I have allowed 9 per cent. for menials' dues.

45. Allusion has already been made to "Kashus" in paragraph 5 of the report. "Kashus" are maintained on the Kachkot and on all Kurram Canals in the tahsil. Before the division of the produce between landlord and tenant one eleventh is deducted from the gross produce as "kashajara." Originally the "Kashu" took this one-eleventh and that was the end of the matter. Nowadays the owner reserves one-fourth of the "kashajara" for himself paying the "Kashu" the balance. There is thus a deduction of one-eleventh to be made from the gross produce and an addition of one-forty-fourth to be made to the landlord's share. This would involve a most complicated calculation, and I have therefore adopted the following method in arriving at the landlord's share of produce. The share of the landlord is, as a rule, one-half the net produce after deductions, in the Nar the landlord's share in Appendix C works out to 50 per cent., and in Tandoba to 41 per cent. It is therefore simpler to treat "kashajara" as a 5 per cent. deduction from the gross produce than to make a deduction of one-eleventh from the gross produce and an addition of one-forty-fourth to the landlord's share. The following equation

will explain the process. After deduction of 9 per cent. kamiana 91 maunds are left out of every 100.

Mds. Mds. Mds.
 $\frac{91-9}{2}$ (Kashajara) + 2 (retained by landlord) = landlord's share per 100 maunds.

$\therefore \frac{91-5}{2}$ = Landlord's share per 100 maunds.

\therefore A deduction of 5 per cent. from the gross produce is for all practical purposes equivalent to a deduction of one-eleventh from the gross produce and an addition of one-forty-fourth to the landlord's share.

I have accordingly allowed a 5 per cent. deduction on all canal irrigated lands for kashajara or canal maintenance. How this affects the private canals will be explained later.

46. The share of produce taken by the landlord is given in Appendix C.

Rents in kind. The figures for the principal soils are as follows:—

Circle.	Detail.	Percentage of menials' dues to be deducted from the common heap.	Percentage of the balance taken by the landlord.
Shiga	Last Settlement	12.5	50.0
	Shiga 1905	9.0	41.0
Gadwad	Last Settlement	11.8	46.8
	Rodkahi 1905	9.0	41.0
Tandoba	Last Settlement	11.1	48.5
	Nahri Ekfasi 1905	9.0	41.0
Nar	Last Settlement	11.1	43.7
	Nahri 1905	9.0	50.0

On unirrigated and irrigated soils alike the ordinary rent rate is one-half of the gross produce. This is the customary rent rate of Murwat and all departures from it are due to special circumstances. On the Nar irrigated lands, where the owner's share of the produce is even as less than 50 per cent., it is always found that some charge in connection with the canal ordinarily met by the landowner in this case is paid by the tenant. In the Tandoba Circle only one-third of the produce is taken over a considerable area affected by the saline deposits brought down by the Kashi. In the old established villages of the Shiga Circle half the gross produce is the rule, but in the Thal rent rates are lower. The Thal tenant, who breaks up land for the first time, pays one-tenth or one-eighth of the produce for a certain number of years. By degrees the rent is increased, until it reaches one-third the usual rent rate in the Thal. The lower rent rate of the Thal is due alike to the inferiority of the soil and the difficulty of obtaining tenants. It is the inclusion of the Thal rents in the Shiga Circle which brings the average proportion of the produce taken by the landlord down to 41 and 45 per cent. on Shiga and Shiga Khatina as against 45 and 48 per cent. on similar soils in the Gadwad Circle. On the rodkahi and barani soils of Gadwad one-third and even one-fourth of the gross produce are fairly common rents, and the average rent rates worked out in Appendix C amount to only 41 and 40 per cent., respectively. On stiff soils the expenses of cultivation are heavier and the harvests are more precarious than on the sandy soils. Hence the rent rate is somewhat lower. On inferior land in Shiga and Gadwad absentee landlords often prefer to take one-third of the gross produce and two-thirds of the land revenue or one-fourth of the gross produce and the whole of the land revenue. These rents are regarded as lower than one-half the gross produce, and in Appendix C they have been graded as equal to two-fifths and one-third of the gross produce, respectively.

The above rent rates appear very high for unirrigated lands. For similar lands in the Thal Circle of the Teri Tahsil the average rent rate is 28 per cent, and in the Tank Tahsil 30 per cent., so that Marwat rents are higher than in either of the neighbouring tahsils. At the last Settlement Mr. Thorburn wrote:—

"The proprietor must impose the highest possible rent, as otherwise he would be unable to pay his share of the revenue and live, and the tenant has to accept the landlord's terms or starve or abandon his native land, which Marwats only do under direct necessity."

Mr. Lyall, Settlement Commissioner, in reviewing the assessment report, gave it as his opinion that the cause of the high rent rate of Marwat lay rather "in the little labour involved in cultivation in all parts of the tahsil." The latter opinion seems to go to the root of the matter, but I would add that the large area which can be cultivated by a single plough in the sandy tracts, the low pressure of population on the soil and the quantity of land available are also important factors in the case. While a tenant in the Nar cultivates at the most 10 acres per annum, including rabi and kharif, the Shiga tenant in his one harvest cultivates 20 or 30 acres. Allowing for the higher outturn on irrigated and the greater proportion of failure on unirrigated lands, the Shiga tenant on the average raises as much grain in the year as the tenant in Nar, and the owner in both cases leaves the same amount to the tenant. Landlords are a class of recent growth in Marwat, and there has never been any sentimental relation between landlord and tenant. The standard of rent has been set, in the first instance, by peasant proprietors, a class who are everywhere notorious for rack-renting: the tenant is left a living wage and no more.

47. On unirrigated soils cash rents are uncommon, and those I have examined have nothing to do with the renting value of the land. Only in

Cash rents.

Nar and Tandoba are there *bonâ fide* leases which are of any value in assessment.

In one Nar village 225 acres have been leased at a rental of Rs. 4 an acre by an absentee owner. The village is a good one with a full share of perennial water, and is therefore able to pay a higher rent than 25 per cent. of the irrigated lands of the circle where there is no water for the kharif. In this village every acre is sown once a year and 10 per cent. of the total area is on the average recorded as "kharaba." The average rent per cropped acre is thus Rs. 4-7. In this case the lessee does not cultivate the land himself, but takes the customary 43 per cent. of the gross produce from the sub-tenants. As the lessee admits to a fair profit, one may safely assume that 43 per cent. of the gross produce represents considerably more than Rs. 4-7 per cropped acre. In the Tandoba Circle 1,272 acres of land are leased by the Hindu owner, an *ex-patwari*, for Rs. 858 per annum, the lessee also paying revenue and cesses amounting to Rs. 223 per annum. Of the 1,272 acres, 832 acres are waste, 48 acres are barani and 392 acres are nahri ekfashi irrigated by the Bamuzai, a canal on the right bank of the Kurram, taking out below the Kashu. An examination of the girdawari shows that on an average during the last six years 290 acres have been cropped every year. The rental per cropped acre thus works out to Rs. 3-11. Here, again, as in the Nar, the lessee does not cultivate the land himself. His tenants pay one-third of the gross produce, the customary rent on the lower Kurram canals. The lessee's margin of profit must be small, but he has sentimental reasons for clinging to the land. In any case there is no loss on the transaction, and Rs. 3-11 may be taken as equivalent to the average rental per cropped acre for lands irrigated by the lower Kurram canals.

48. These are found chiefly in the Nar and, as a rule, are so bound up in lean transactions that they are of little use in assessment. I have selected

Other rents.

two of these rents which I believe represent the value of the land. Both are taken from villages with a perennial water-supply. In the first the landlord takes $8\frac{1}{2}$ "paropis" per kanal or 2 maunds 26 seers per cropped acre as well as the land revenue 7 annas an acre. The half net assets statement of this circle is based on an outturn of 6 maunds an acre and a batai rent of 43 per cent. or 2 maunds 23 seers per acre. So far the rent quoted above tallies with the estimate. But in this instance the owner receives no share of the straw taking instead Re. 0-7-0 land revenue per acre while in the estimate the owner's share of the straw is worth Re. 0-14-0, and he receives nothing in cash. This rent is therefore Re. 0-7-0 per cropped acre lower than the half net asset's estimate.

In a similar village on 46 acres of cultivated land the lessee pays annually 26 maunds 25 seers maize, 54 maunds 15 seers wheat and Rs. 35 the land revenue and cesses. At the sanctioned commutation prices the total value of this rent is Rs. 156 or Rs. 3-6 per acre. Making the usual deductions for kharaba this would work out to Rs. 3-10 per cropped acre.

PART VI.—HALF NET ASSETS ESTIMATE.

49. The average matured area for the six years 1899-1905 forms the basis of the produce estimate. To the area of each crop the average outturn given in paragraph 39 has been applied. The gross produce has then been valued at the prices given in paragraph 27.

The estimate of the gross outturn made at the last Settlement compares with the estimate given in Appendix B as follows :—

CIRCLE.								Last Settlement.	1905.
								Rs.	Rs.
Shiga	...	...	...	...	...	...	...	3,36,509	8,26,867
Gadwad	...	...	...	...	...	...	...	2,79,154	3,53,695
Tandoba	...	...	...	...	...	...	...	88,314	4,14,351
Nar	...	...	...	...	...	...	...	55,479	1,36,576
Total								7,54,456	17,31,489

The difference between the figures of 1878 and 1905 is due to the increase in the cultivated area and the rise in prices. The gross produce of the Gadwad Circle as explained in Part II was over-estimated at the last Settlement. Not only has the cultivated area in the Tandoba Circle increased, but the crops grown on the lands recently brought under cultivation are very much superior to those which the circle was formerly able to produce. Finally, no estimate of the value of the straw was made at the last Settlement. On batai paying land the landlord invariably receives a share of the straw, and I have therefore been compelled to include this item in the produce estimate.

After deducting from the gross produce the kamins' dues given in paragraph 44 and the charges in connection with canals which are borne jointly by landlord and tenant, the rents set out in Appendix C have been applied to the gross produce. Half this sum, *viz.*, half net assets, is the limit of the Government demand. Half net assets are worked out in Appendix D and amount to Rs. 3,24,091, an increase of 184 per cent. on the present revenue.

In the Shiga Circle the gross produce has been valued at the prices prevailing for the tahsil; but owing to the peculiar circumstances of the circle, the actual cash value of the crop is considerably less than the sum brought out by the produce estimate. Jowar is used only for fodder; water-melons are grown to eke out the meagre water-supply in villages at a distance from the rivers, they are even given to the cattle, but they are seldom taken to market. In the same way there is no market for straw. With wheat straw at 9 maunds the rupee, it does not pay to carry it away from the distant villages. There are not enough cattle in the circle to consume the straw in good years and the straw stacks of 1903 are now rotting on the ground. The following tables show the gross value of jowar, melons and straw in the Shiga Circle, and the resultant half net assets if these items were omitted from the produce estimate :—

Table showing value of straw, jowar and melon to be deducted from the produce estimate of the Shiga Circle.

SOILS.				Jowar.	Melons (kharif).	Melons (rabi).	Wheat straw.	Barley straw.	Gram straw.	Total.
Rodkahi	...	...	...	225	228	456	433	24	98	1,464
Barani	...	...	...	260	396	148	1,162	14	372	2,352
Shiga khatina	...	...	...	193	122	34	6,712	40	2,509	9,610
Shiga	...	...	...	347	3,338	820	49,716	793	23,837	77,851
Total				1,025	4,084	1,458	58,023	871	26,816	92,277

The results of the above reduction are shown in the following table:—

Soils.	Gross produce.	Landlord's share.	Half-net assets.
Rodkahi	13,528	5,005	2,502
Baráni	14,830	6,080	3,040
Shiga khatina	87,034	35,683	17,841
Shiga	619,198	235,295	117,648
Total	734,590	282,063	141,031

The above reduced half-net assets give a better idea of the limit of the Government demand than the half-net assets in Appendix D.

The same remarks apply to a few villages of the Gadwad Circle, but not the same extent as regards the circle as a whole. Water is not at such a distance from the villages; and the markets of Bannu and Dera Ismail Khan are within easier reach of the zemíndárs. The melons are sold in Bannu and much of the straw finds a market. I have not thought it necessary to reduce the half-net assets in the same way as I have done with the Shiga Circle.

The figure given in Appendix B for the Tandoba Circle is a very rough estimate of the gross produce. It has been necessary to assume average outturns for crops which vary enormously in value according to the system from which their irrigation is derived. At the same time I do not think the estimate in any way over-states the value of the gross produce. It is necessary here to explain the deduction of Rs. 32,059 from the gross produce as not assessable to land revenue. In Part VII the "abiyana" or share of the produce taken by the private canal owners is estimated at Rs. 43,509 per annum. Out of this amount the canal owners pay for the staff and repairs necessary for the upkeep of their canals. I have allowed, both in Nar and Tandoba on Government and zemíndári canals, 5 per cent. of the gross produce for canal maintenance. In the same way, on the private canals I have put the cost of maintenance at 5 per cent. of the gross produce, or Rs. 11,450. This amount is paid away by the canal owners out of their gross income of Rs. 43,509, leaving a net income of Rs. 32,059. The whole sum, Rs. 43,509, is liable to royalty and not to land revenue, and therefore might have been deducted from the gross produce. But it was simpler in the half-net asset statement to deduct 5 per cent. throughout the circle, thus including the Rs. 11,450 in this column and then deduct the net income of the canal owners, viz., Rs. 32,059, than to omit the usual deduction of 5 per cent. over the area irrigated by private canals and then deduct the gross income of the canal owners viz., Rs. 43,509 from the balance. I have assumed that the share of the produce taken by the canal owners will not be liable to land revenue at half-net assets but to royalty assessed in accordance with the principle of the Punjab Minor Canals Act of one-fourth of the net income. It will thus be seen that the gross income of the canal owners has been omitted from the half-net assets by placing Rs. 11,450 in the column of 5 per cent. deduction for canal maintenance and the balance Rs. 32,059 in a separate column.

The half-net assets for the Nar Circle call for no special remark. There is always a market for the straw and the produce estimate is, if anything, below the mark.

50. It has already been pointed out that the Marwat is entirely dependent on his crops for a living. In most frontier tahsils military pensions amount to a large sum, sometimes to lakhs of rupees. In Marwat there is practically no income from this source. The main sources of miscellaneous income have already been discussed in paragraph 28. The only remaining items are the sale of wood, charcoal, and carbonate of soda. I have estimated the income derived from the sale of carbonate of soda to be between two and three thousand rupees for the whole tahsil. For wood and charcoal I have made no attempt at an estimate. The profits on a day's labour are not sufficient to do more than keep body and soul together, and it is only in the poorer villages of north-west Marwat that there is any trade of this description.

There is no grazing that can be assessed to revenue, and the miscellaneous income derived from the land in other ways is not of sufficient importance to affect the gross assessment of the tahsil.

51. The following tables exhibit the annual value of the cropped acre and the half-net assets by circles and soils :—

Annual value of cropped acre by soils.

SOILS.	Shiga.	Gadwad.	Tandoba.	Nar.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Nahri dofasli ... ..	...	...	14 1 0	...
" ekfasli ... ..	...	...	12 6 0	10 12 0
Rodkahi	6 12 0	10 13 0	10 13 0	...
Barani	5 15 0	7 3 0	7 0 0	...
Shiga Khatina	7 14 0	7 12 0	7 13 0	...
Shiga	6 13 0	6 13 0	6 14 0	6 4 0

Half-net crop rates.

SOILS.	Shiga.	Gadwad.	Tandoba.	Nar.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Nahri dofasli ... ..	...	...	2 4 0	...
" ekfasli ... ..	...	...	1 15 0	2 5 0
Rodkahi	1 4 0	2 0 0	1 7 0	...
Barani	1 3 9	1 5 0	1 1 0	...
Shiga khatina	1 9 9	1 11 0	1 9 0	...
Shiga	1 4 8	1 6 0	1 4 0	1 5 11
Average incidence	1 5 2	1 8 5	1 14 0	2 3 5
Resultant revenue	1,58,736	68,484	67,416	29,455

These figures give a fair idea of the comparative value of the soils and of the maximum revenue assessable on them, with the exception of the irrigated lands in the Tandoba Circle, where the classifications of ekfasli and dofasli have been found of little use for purposes of assessment, as will be explained in Part VII,

PART VII.—THE ASSESSMENT.

52. At the last Settlement a fixed assessment was imposed on both irrigated and unirrigated lands alike. The system of assessment to be adopted on

irrigated lands will be discussed later on in the paragraphs relating to the assessment of the Nar and Tandoba circles. The following argument will be confined to the system of assessment to be adopted for the *bārāni* circles of Marwat. The Dera Ismail Khan and Kohat Districts, which lie west and east of the Marwat Tahsil, have recently been assessed, the former at fluctuating and the latter at fixed rates, so that either may be taken as a precedent for one or other of the rival systems. Mr. Thorburn, in paragraph 196 of his Settlement Report, gave it as his opinion "that should the present assessment break down, *i. e.*, the people get more and more impoverished through the fault of our system, the sandy tracts of Marwat should be held 'kham tahsil' at fixed money acreage rate." The fixed assessment has not broken down anywhere in Marwat in the sense that it has broken down in certain tracts of Dera Ismail Khan. The revenue demand has latterly been realized in full and fairly regularly. But there is no doubt that the people have become more impoverished in the sense that the area in the hands of money-lenders has increased at an alarming rate during the last thirty years. The problem resolves itself into the two questions (1) whether the impoverishment of the peasantry is due to the system of fixed assessment, and (2) whether a system of fluctuating assessment will prove any remedy for the evil. In the first place I am by no means convinced that the alienation of land by the peasantry is a result of the fixed assessment. In certain villages in the Thal, where the revenue is practically a negligible quantity, alienation by the peasantry has gone on even more rapidly than in the most highly assessed villages of the tahsil. It is not only the pressure of the land revenue which drives the peasant to alienate his land. Even if there was no land revenue at all the Marwat would be driven to borrow in years of scarcity. Up to date the capitalist has only been ready to lend in return for the permanent alienation of land in his favour. For this dispossession of the agriculturist by the money-lender a remedy has only lately been adopted in the Land Alienation Act, which goes further in the North-West Frontier Province than in the Punjab. No member of the money-lending classes may now acquire a permanent interest in land belonging to a member of an agricultural tribe. The immediate result has been a contraction of credit, the ultimate result is still a matter of conjecture. The survival of *vesh* villages, whose members are debarred from making any permanent alienation of their tribal lands, augurs well for the Act. The disappearance of the *vesh* in other villages indicates the difficulties in its way. It would seem almost a corollary of the Land Alienation Act that with a contraction of credit should go a system under which the annual demand should be limited to the resources of the revenue payer. *Prima facie* under a fluctuating assessment the revenue demand is never more than the zemindar can pay nor less than the Government is entitled to take, while a fixed assessment is a gamble in which Government is bound to lose in the long run, the zemindar may be ruined in a single year and only the capitalist can win. But what appears to be an axiom in theory in practice assumes a very different aspect. In the first place the rigidity of a fixed assessment is relieved by suspensions and remissions. A fixed assessment with suspensions worked on a system of acreage rates bears a close resemblance to a fluctuating assessment. The difference lies only in the fact that the suspensions are confined to the revenue demand of the whole village, while a fluctuating assessment reaches the individual revenue payer. The superiority of a fluctuating assessment in any tract therefore depends largely on how far the crop statistics for the village, as a whole, reflect the conditions of the individual revenue payer. In the Shiga Circle the crops throughout a village in any given year are fairly homogeneous. If the statistics for the whole village show the area matured to be one-fourth of the average area, and a proportionate suspension of revenue is made, it will be found, as a rule, that every revenue payer has been relieved in proportion to his distress, or, in other words, that the same result has been achieved as if the village had been assessed at fluctuating rates. In the Gadwad Circle this is not the case. There may be an excellent crop on *rodkahi* lands while the *barani* has been a complete failure: or again the *shiga* crop may be a success while the stiff soils have not even

been sown. In the Gadwad Circle a suspension of revenue based on the statistics of the village, as a whole, does not afford sufficient relief to the zemindars, whose crops are a failure, while benefiting those whose crops were a success, and from whom the full Government demand might well have been realized. Thus, there are stronger arguments in favour of a fluctuating assessment in Gadwad than in Shiga. In fact in Shiga there is a fairly strong case against a fluctuating assessment. According to our statistics there is always a crop of some sort in this circle. Complete failure is unknown. It will therefore be for the patwari to grade the crop of every revenue payer in the circle. With fields a mile long and a yard wide this task, difficult enough under ordinary circumstances, becomes doubly difficult. To expect uniformity of practice from twenty patwaris working in different villages is out of the question. The girdawari figures are sufficiently near the mark to indicate the state of the crop for the village as a whole, but I should be sorry to rely on them for a system of field to field assessment. The opportunities which a fluctuating assessment afford for corrupt practises are obvious, and in Marwat the probability of such opportunities being turned to account is enhanced by the fact that the revenue traditions of the tahsil favour corrupt practises, and the people are backward and ignorant. Amongst the Marwats themselves there are no two opinions as to which system of revenue is preferable. Even the zemindars of the poorest villages in the Gadwad Circle regard the idea of a fluctuating system with dismay, and prefer the inequalities of a fixed assessment to the exactions and harassment to which they feel they would be subjected under the alternative system. The assessment of their Mulazai kinsmen in the Tank Tahsil at fluctuating rates has in no way modified their attitude towards the innovation. To sum up, in the Shiga Circle it is not in any way proven that the fixed assessment is responsible for the alienation of land; the tract is peculiarly secure for barani land in this part of India; in bad years suspension of revenue affords relief to almost the same extent as a fluctuating assessment; the fluctuating system would be extremely difficult to work in practise; there is every reason to suppose the zemindars would be subjected to all kinds of exactions. The people are unanimous in demanding a fixed assessment. On the other hand, a fluctuating assessment would mean, in the long run, more revenue; and Government will be a loser by the retention of the system of fixed assessment. Considering that the revenue of the tahsil is to be doubled, Government can afford to defer to the wishes of the people. I am accordingly proposing a fixed assessment for the Shiga Circle, and I do not anticipate the fixed assessment breaking down. However, in order that provision may be made for every eventuality, I have prepared a scheme of fluctuating assessment as an alternative should the fixed assessment break down in any village or in the whole tract, but the fluctuating rates should only be given a trial when the fixed assessment is clearly shown to be unworkable.

In Gadwad, and more especially in the north of the circle, the alienation of land may in many cases be traced to the system of fixed assessment; the tract is extremely insecure; suspensions often fail to benefit those for whom they are intended; and the working of the fluctuating system presents no greater difficulties than in any other barani tract. On the other hand, the people are no less opposed to a fluctuating assessment than in Shiga and no argument will convince them that the system is anything but a high road for robbery and extortion. A suggestion of mine that an additional Naib Tahsildar would be deputed to their circle to ensure more complete supervision of the girdawari was treated as a joke of the first order, and it was almost pityingly pointed out to me that the visit of an additional revenue official would not be regarded in a Marwat village as an unmixed blessing. I adhere to my opinion that a fluctuating assessment would be the most suitable, at any rate, for the northern villages of the tract, but as there will, in any case, be no increase of revenue in the poorer villages, and the zemindars can no longer alienate their land to money-lenders, I see no reason to force on them a system to which they object. I have accordingly given preference to a fixed assessment, but as in the case of Shiga I have drawn up alternative fluctuating rates. In the Shiga Circle the fluctuating rates are not to be introduced unless the fixed assessment breaks down. In the Gadwad Circle I propose in announcing the assessments to offer each village the alternative of a fluctuating assessment; and later on, should there be any difficulty in realizing the fixed assessment or the people demand the change, there should be no hesitation in substituting the fluctuating rates for the fixed assessment.

53. In the following table is given a summary of the most important statistics for each circle and the tahsil as a whole :—

Summary of statistics,

DETAIL.	Shiga.	Gadwad.	Tandoba.	Nar.	Tahsil.
Cultivation—					
Percentage of cultivated area to total area.	50.1	36.3	36	62.6	43.6
Percentage of irrigated to cultivated area.	...	...	67.9	86.5	12.3
Percentage of average matured to cultivated area.	65.9	51.3	92.3	89.6	64.3
Percentage of crops harvested last six years.	...	...	...	...	...
Soils... { Nahri dafasli ... ..	...	...	15	...	2.6
Do. okfasli ... ..	...	...	63.9	88.97	18.3
Rodkahi	1.9	23.3	1.0	...	0.1
Barani	2.3	24.7	4.0	...	7.2
Shiga khatina	10.3	4.5	1.1	...	0.9
Shiga	85.5	47.5	15	11.03	60.9
Kharif percentage of cropping	5.2	20.3	20.8	21.8	12.1
Maize ... ..	...	...	13.2	19.2	3.4
Jowar	2	3.4	3.1	7	1.4
Bajra	2.7	12.4	3.5	1.3	4.8
Moth	6	2.3	2	...	3
Mung ... ..	...	6	...	...	2
Rice ... ..	...	...	4	...	1
Cotton ... ..	...	1	2	4	1
Rabi percentage of cropping	94.8	79.7	79.2	78.2	87.9
Wheat	48.4	45.3	51.9	54.7	48.3
Barley	4.1	2	6.7	7.3	2.1
Gram	44.8	31.7	9.4	8	33.8
Sarshaf ... ..	...	...	2.6	7	5
Tobacco ... ..	...	...	1	2	...
Percentage of kharaba on sowings	26	32	10	11.7	34.3
Increase or decrease per cent. of irrigated area.	...	...	+156.7	+36.6	+101.3
Increase or decrease per cent. of un-irrigated area.	+51.5	+35.6	+15	+84	+43.6
Increase or decrease per cent. of total cultivation.	+51.5	+35.6	+34.2	+40.6	+48.9
Population, holding, &c.—					
Population per square mile of area	68	67.80	108	244	78.33
Ditto cultivation	136	186.70	300	393	179.39
Increase between 1891 and 1901, per cent.	18	5	25	12	14
Average cultivated area per holding, 1904-05, acres.	7.2	8.9	7.7	10.8	7.6
Average cultivated area per owner, 1904-05.	7.2	6.2	5.4	8.8	6.7
Percentage of cultivation cultivated by owners.	55.2	58.4	48.1	23.9	53.9
Percentage of cultivated area under mortgage.	38	45.5	26.2	15.4	33
Percentage of cultivated area sold since Settlement.	9.3	9.9	15.4	17.4	10.5
Percentage of cultivated area sold to money-lenders.	1.6	1.1	4.4	9.2	2.1
Revenue—	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Revenue assessed at Settlement	59,070 0 0	35,995 0 0	11,568 0 0	6,830 0 0	1,13,512 0 0
Incidence on area then cultivated	0 7 10	0 7 11	0 8 3	0 10 5	0 3 0
Revenue demand, 1904-05	59,334 0 0	35,961 0 0	11,597 0 0	6,874 0 0	1,13,766 0 0
Incidence on area now cultivated	0 5 2	0 5 10	0 4 4	0 7 5	0 5 4
Ditto average cropped area	0 7 11	0 12 9	0 5 2	0 8 3	0 8 6
Half-net assets estimated	1,58,736 0 0	68,484 0 0	67,416 0 0	29,455 0 0	3,24,091 0 0

54. The half-net assets of the Shiga Circle and the resulting crop rates are shown in the following table :—

SOIL.	Gross produce.	Land-lord's share.	Half assets.	Cropped area.	Crop rate.
	Rs.	Rs.	Rs.	Acres.	Rs. a. p.
Rodkahi	14,992	5,547	2,773	2,220	1 4 0
Barani	17,182	7,044	3,522	2,895	1 3 9
Shiga, khatina	96,644	39,624	19,812	12,314	1 9 9
Shiga	6,98,049	2,65,258	1,32,629	102,411	1 4 8
Total	8,26,867	3,17,473	1,58,736	119,840	...

Reduced in the manner described in Part VI the half-net assets are—

Soil.											Rupees.
Rodkobi	...	...	...	...	...	...	...	...	...	...	2,502
Barani	...	...	...	...	...	...	...	...	...	...	3,040
Shiga Khatina...	...	...	...	...	...	...	...	...	...	...	17,841
Shiga	...	...	...	...	...	...	...	...	...	...	1,17,648
Total											1,41,031

The present assessment of the circle is Rs. 59,334, or 37 per cent. of half-net assets and 42 per cent. of reduced half-net assets. The incidence of the revenue on the cultivated area at last Settlement was Re. 0-7-10 and is now only Re. 0-5-2. There is no irrigation in the circle and the crops are entirely dependent on the rainfall. The kharif forms only 5 per cent. of the total cropping. Everything depends on the rabi harvest and more especially upon the wheat and gram crops which take up 48·4 and 44·8 of the total cropped area for the year. On an average every year 26 per cent. of the sown area is recorded as failing to reach maturity; but as I have shown in Part III this is an under-estimate of the facts.

Since Settlement there has been an increase of 51·5 per cent. in the cultivated area, but the land now broken up is generally of a lighter and inferior quality to the land under cultivation at the last Settlement.

The population has increased by 18 per cent. in the last ten years: the increase being chiefly in the Trans-Kurram Thal. The pressure of population is only 136 to the cultivated square mile. Owing to the system of ownership it is impossible to form any conclusion from the number of holdings. But the area owned by men living outside the circle is inconsiderable, and if all the adult males were owners the average holding per owner would work out to about 20 acres. One plough can cultivate from 20 to 40 acres.

The area cultivated by the owners themselves is 55 per cent., 38 per cent. of the cultivated area is under mortgage and 9 per cent. has been sold since Settlement. Of this area money-lenders hold 10 per cent. by mortgage and 1·6 by sale.

During the last seven years the average price of land has been Rs. 46 per cultivated acre to agriculturists and Rs. 69 to money-lenders, while the mortgage money has been Rs. 29 and Rs. 37, respectively. During the last thirty years the average price of land per cultivated acre sold to agriculturists works out to Rs. 34, but in the Thal it has been only Rs. 17.

At the last Settlement the old established villages were very fully assessed, and there has been little increase in their cultivated area. The general rise in prices for Marwat Tahsil is the only ground for enhancement in this quarter, and as I have shown in Part II that the outturn of this tract was over-estimated at the last Settlement nothing like an increase of 59 per cent. can be taken. The reduced half-net assets point to a general rise of 137 per cent. in the whole circle. Were the half-net assets followed in the proposed assessment, nearly the whole enhancement would fall on the newly broken up Thal, where the conditions of agriculture are still unsettled, the soil inferior and the present assessment almost nominal.

Sixty-two thousand and seven hundred acres of cultivation, now measured the Thal, are paying only Rs. 5,900 land revenue. It is clearly impossible for Government to take full half-net assets without raising the demand in the Thal out of all proportion to the practicable scale of enhancement. The full half-net assets brought out by the produce estimate are further subject to the criticism that recent harvests have been exceptional, that prior to 1903 a large area is recorded as matured which in reality failed to come to maturity, and that therefore the cycle of years on which the produce estimate is based gives an exaggerated idea of the average outturn of the circle. Finally the circle is one demanding exceptionally lenient treatment. The Marwat of the Shiga Circle lives by his grain alone. There is little grazing, no by-products and no subsidiary industries or sources of income. Accordingly I propose to assess the circle at Rs. 95,000, representing 60 per cent. of the half-net assets given in Appendix D and 67 per cent. of the half-net assets as reduced in paragraph 49.

This involves an increase of 60 per cent. on the present revenue. The resultant and proposed rates are as follows:—

Soil.	Half-net assets crop rates.	Crop rate reduced to 60 per cent. of half-net assets.	Cropped area.	Resultant revenue.	Cultivated area.	Arithmetical soil rates.	Proposed soil rates.	Proposed revenue.	Last Settlement rates.
	Rs. a. p.	Rs. a. p.	Acres.	Rs.	Acres.	Rs. a. p.	Rs. a. p.	Rs.	Rs. a. p.
Rodkahi ...	1 4 0	0 12 0	2,220	1,665	4,079	0 6 0	0 6 0	1,665	0 10 0
Barani ...	1 3 9	0 11 10	2,895	2,141	6,835	0 5 0	0 4 0	1,709	0 6 0
Shiga Khatina ...	1 9 9	0 15 5	12,314	11,865	17,007	0 11 2	0 12 0	12,755	0 10 0
Shiga ...	1 4 8	0 12 5	102,411	79,475	153,783	0 8 3	0 8 3	79,475	0 6 0
Total ...	...	...	119,840	95,146	181,704	...	...	95,604	...

The above is a plain fixed assessment and the alternative fluctuating assessment is now given.

The gross value of every crop per acre matured, omitting straw, is shown in the following table:—

Soil.	Jowar.	Bajra.	Moth.	Mung.	Melons.	Wheat.	Barley.	Gram.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Rodkahi ...	5 10 0	6 12 0	5 4 0	4 0 0	2 0 0	9 12 0	8 0 0	7 2 0
Barani ...	3 6 0	4 8 0	4 8 0	3 0 0	2 0 0	6 8 0	5 0 0	5 15 0
Shiga Khatina ...	4 8 0	6 0 0	4 8 0	4 8 0	2 0 0	8 2 0	6 0 0	5 15 0
Shiga ...	3 6 0	4 8 0	3 0 0	3 0 0	2 0 0	6 8 0	5 0 0	5 15 0

The corresponding half-net assets are—

Soil.	Jowar.	Bajra.	Moth.	Mung.	Melons.	Wheat.	Barley.	Gram.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Rodkahi ...	1 0 8	1 4 0	0 15 11	0 11 10	0 5 11	1 12 10	1 7 8	1 5 1
Barani ...	0 11 1	0 14 9	0 14 9	0 9 10	0 6 7	1 5 4	1 0 5	1 3 6
Shiga Khatina ...	0 14 9	1 3 8	0 14 9	0 14 9	0 6 7	1 10 8	1 3 8	1 3 6
Shiga ...	0 10 3	0 13 9	0 9 2	0 9 2	0 6 1	1 3 9	0 15 3	1 2 0

In a fluctuating assessment simplicity is of the greatest importance. Every complication puts more power in the hands of the patwari. Now in this circle gram and wheat take up 93·2 per cent. of the whole cropped area and 85 per cent. of the crops harvested are grown on Shiga soil. I propose an all-round rate of 8 annas on the cropped acre in the kharif and zaid rabi. For the rabi crops I would have only one rate in a village, but I propose to divide the villages into two classes—the first class to pay Re. 1·2 per cropped acre, the second to pay 12 annas.

Thus the rates will be —

	Rs. a. p.
1. Kharif and zaid rabi ...	0 8 0
2. Rabi class I ...	1 2 0
3. Ditto II ...	0 12 0

If Re. 1·2 per acre appears at first sight severe as regards barley and gram on Shiga soil, it is sufficient to remember that barley forms a very small proportion of the cropped area, and it is most unusual for a zemindar to sow only barley or only gram.

During the period 1899-1905 such a fluctuating assessment would have brought in on an average every year Rs. 1,14,436 as follows :—

Class.								Cropped area.	Resultant revenue.
								Acres.	Rs.
Kharif and zaid rabi	...	...	...	...	...	...	...	6,994	3,497
Rabi	...	...	...	...	...	...	...	70,146	78,914
	...	...	...	...	...	...	...	42,700	32,025
Total								1,19,840	1,14,436

55. The half-net assets of the Gadwad Circle and the resulting crop rates are—

Proposed assessment, Gadwad Circle.

Soil.				Gross produce.	Land-lord's share.	Half-net assets.	Cropped area.	Crop rate.
				Rs.	Rs.	Rs.	Acres.	Rs. a. p
Rodkahi	...	...	...	1,13,224	41,832	20,946	10,457	2 0 0
Barani	...	...	...	79,628	28,666	14,333	11,078	1 5 0
Shiga Khatina	...	...	...	15,473	6,808	3,404	1,993	1 11 0
Shiga	...	...	...	1,45,370	59,602	29,801	21,330	1 6 0
Total				3,53,695	1,36,968	68,484	44,858	...

The present assessment of the circle is Rs. 35,961, of which Rs. 32,844 are khalsa. The incidence of the revenue at the Settlement was Rs. 0-7-11 per cultivated acre and is now Rs. 0-5-10.

The cultivated area has increased by 35·6 per cent. since the last Settlement, but the increase in the case of stiff soils is very doubtful as explained in Part III, while the increase in the sandy soils includes most inferior land, such as Pezu. The general rise in the price of food grains affords no argument for enhancement in a circle where the consumption exceeds the production. Population has increased by 5 per cent. in the last ten years and the pressure of population on the soil is now 186 per square mile of cultivation. The rabi occupies 80 per cent. of the area matured and the kharif 20 per cent. Wheat forms 45 per cent., gram 31 per cent. and bajra 12 per cent. of the cropped area. Forty-seven per cent. of the sown area fails in the kharif and 31 per cent. in the rabi or 32 per cent. of the total sown area, 58·4 per cent. of the cultivated area is cultivated by the owners; 45·5 per cent. is mortgaged and 9·9 per cent. has been sold since Settlement; 14·4 per cent. is in the hands of money-lenders, 1·1 per cent. by sale and 13·3 per cent. by mortgage. During the last seven years the average price per acre paid by zemindars has been Rs. 51 and during the last thirty years Rs. 45. For the latter period the average mortgage money has been Rs. 28 per acre, but these figures concern only the better land of the circle.

Conditions in the sandy tract to the south of the circle differ little from the Shiga Circle. In the north of Gadwad outside a few of the best rodkahi villages, cultivation is more precarious than elsewhere in Marwat. The over-estimate of the crops made in the first Settlement and the poverty of the people have been fully dealt with in the earlier pages of the report. Suspensions have to be given every year and the revenue is always difficult to realize. Considering that there is less rain in this corner of the tahsil than in south-east Marwat and that the percentage of failure recorded for the sandy soils of Gadwad is higher than elsewhere, the rates on Shiga and Shiga Khatina should not be higher than in the Shiga Circle. The poorer rodkahi and barani villages are the worst off and the most heavily assessed in Marwat. The present circumstances and the past history of the tract afford every reason for leniency in assessment. Accordingly I propose to assess the circle at Rs. 45,000 or 66 per cent. of half-net assets. This involves an increase of 25 per cent. on the present assessment.

The arithmetical and proposed rates are as follows :—

SOIL.	Half-net crop rates.	Crop rate reduced to 66 per cent. of half-net assets.	Cropped area.	Resultant revenue.	Cultivated area.	Arithmetical soil rates.	Proposed soil rates.	Proposed revenue.	Last Settlement rates.
	Rs. a. p.	Rs. a. p.	Acres.	Rs.	Acres.	Rs. a. p.	Rs. a. p.	Rs.	Rs. a. p.
Rodkahi ...	2 0 0	1 5 4	10,457	13,942	26,912	0 8 3	0 10 0	16,820	0 11 0
Barani ...	1 5 0	0 13 10	11,078	9,578	31,793	0 4 10	0 4 0	7,948	0 7 0
Shiga Khatina ...	1 11 0	1 1 9	1,993	2,214	3,351	0 10 7	0 12 0	2,512	0 10 0
Shiga ...	1 6 0	0 14 6	21,330	19,331	36,457	0 8 6	0 8 3	18,797	0 6 0
Total ...	...	...	44,858	45,065	98,513	...	...	46,077	...

My proposals for an alternative fluctuating assessment follow.

The gross value and the half-net assets of the principal crops per acre matured are given below :—

SOIL.	Rice.	Maize.		Jowar.	Bajra.		Moth.	Mung.		Til.	Cotton.	Fodder crops.		Others (Mellons).	Wheat.	Barley.	Gram.	Sarshaf.	Tobacco.	Vegetables.	Carrots and turnips.
		Rs	Rs a	Rs a p	Rs a	Rs a	Rs a p	Rs a p	Rs a	Rs		Rs a p	Rs a	Rs							
Rodkobi	15	7 14	5 10 0	7 8	6 0	5 0 0	10 0 0	15 0	8 12	4 13 0	18 0	9 0 8	8	15	10	8	...	...	...
Barani ... ..	...	7 14	4 8 0	6 0	4 8	3 0 0	3 5 4	7 8	8 7	0 2	8 2	6 7	2	6	...	...	...	...	...
Shiga Khatina...	...	...	4 8 0	6 0	4 8	4 0 2	10 0 0	...	...	4 3 0	8 2	6 6	15	...	...	...	...	...	...
Shiga ... ..	...	...	3 0 1	4 8	3 0	3 0 0	7 0 9	8 0	...	3 0 0	6 8	5 5	15	6	...	...	...	...	...

Corresponding half-net assets are—

SOIL.	Rice.	Maize.	Jowar.	Bajra.	Moth.	Mung.	Til.	Cotton.	Fodder crops.	Other (Mellons).	Wheat.	Barley.	Gram.	Sarshaf.	Tobacco.	Vegetables.	Carrots and turnips.
	Rs a p	Rs a p	Rs a p	Rs a p	Rs a p	Rs a p	Rs a p	Rs a p	Rs a p	Rs a p	Rs a p	Rs a p	Rs a p	Rs a p	Rs a p	Rs a p	Rs a p
Rodkahi ...	3 5 6	1 7 4	1 0 6	1 0 2	1 1 9	1 1 9	1 13 7	2 12 4	1 7 8	1 3 1	2 0 5	1 10 9	1 12 2	1 7 6	2 12 4	1 13 7	1 7 8
Barani ...	...	1 0 9	0 13 0	1 3 0	1 3 0	0 8 8	0 9 7	1 5 7	1 7 0	1 5 3	1 7 5	1 13 1	1 4 6	1 1 3	...	...	...
Shiga Khatina...	...	...	0 15 10	1 5 10	1 5 10	1 0 1	2 3 9	...	...	0 14 9	1 12 7	1 5 1	1 4 11	...	...	...	...
Shiga ...	...	...	0 11 10	1 4 9	0 9 9	0 9 9	1 7 0	1 10 3	...	0 9 9	1 4 1	1 0 5	1 3 6	1 3 8	...	...	...

In the Gadwad Circle only 14 per cent. of the kharif is grown on sandy soils and 60 per cent. of the total area matured is bajra. For the kharif crops I propose an all-round circle rate of 12 annas per acre matured.

For the rabi the same rates should be taken for the sandy soils as in Southern Marwat, viz., Re. 1-2 per acre matured. It will be seen from the above table that Re. 1-2 is also suitable for barani soils. The rodkahi half-net assets are higher and 74 per cent. of the rabi grown on rodkahi land is wheat. Accordingly I propose a rate of Rs 2 per acre matured on all rabi crops grown on rodkahi lands. During the period 1899—1905 the average annual revenue brought out by these rates would have been as follows :—

Harvest.				Class.	Rate.	Cropped area.	Resultant revenue.
					Rs. a. p.	Acres.	Rs.
Rabi	...	...	...	Rodkahi ...	2 0 0	6,850	13,700
				Other ...	1 2 0	28,916	32,530
Kharif	...	...	...	All soils ...	0 12 0	9,092	6,819
Total				...	...	44,858	53,049

Proposed assessment, Tandoba Circle.

56. The half-net assets estimate and the resulting crop rates are—

Soil.	Cropped area.	Gross produce.	After deducting 5 per cent. for upkeep of canals and 9 per cent. kamiana.	Not liable to revenue.	Landlord's share.	Half-net assets.	Crop rates.
	Acre.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs. a. p.
Nahri dofasli	5,385	75,891	65,267	8,015*	25,190	12,595	2 4 0
Do. ekfasli	22,937	2,84,254	2,44,459	24,044*	90,370	45,185	1 15 0
Rodkahi	380	4,112	3,742	...	1,122	561	1 7 0
Barani	1,445	10,184	9,268	...	3,151	1,575	1 1 0
Shiga khatina	516	4,041	3,678	...	1,618	809	1 9 0
Shiga	5,222	35,869	32,641	...	13,382	6,691	1 4 0
Total	35,885	4,14,351	3,59,055	32,059	1,34,833	67,416	...

* This amount is assessed to royalty, not land revenue.

The revenue assessed at the last Settlement was Rs. 11,568 and the demand is now Rs. 11,597. The incidence of the demand on the cultivated area was Re. 0-8-3 at the last Settlement and is now only Re. 0-4-4 the lowest in Marwat. During the last seven years the average price of cultivated land sold to zemindars has been Rs. 87 per acre the highest in Marwat.

Since Settlement the cultivated area has increased by 84 per cent. and the irrigated area by 156 per cent. Now 67 per cent. of the cultivated area is irrigated. Between 1891 and 1901 population increased by 25 per cent. and the pressure of population per square mile of cultivation is now 300. 79.2 per cent. of the cropping takes place in the rabi and 20.8 per cent. in the kharif. Wheat forms 51 per cent. of the total cropped area, maize 13 per cent. and gram 9 per cent. On an average only 10 per cent. of the sown area fails every year. A considerable enhancement of revenue may thus be expected from this circle.

The table given in Part III shows that the increase of cultivation and the rise in prices justify an increase of 200 per cent. in the land revenue. But that calculation is based on the hypothesis that the area which has come under cultivation since Settlement is similar in quality and productivity to the land already under assessment. As a matter of fact practically the whole increase of cultivation has been in the irrigated area and the outturn on land irrigated by canals constructed since the last Settlement is much heavier than on land irrigated by the older canals. The half-net assets, though only a rough estimate, are nearer the mark in showing an increase of 500 per cent. on the present demand; but the crop rates worked out from the half-net assets estimate are of little or no use. The soil classifications adopted for the district as a whole do not sufficiently cover the variations in this circle due to differences in the methods of irrigation.

There are in all six distinct canal systems employed in the irrigation of the circle.

They are—

1. The private canals of Dauran Khan and Ghulam Muhammad Khan taking out of the Baran.
2. The tail of the Kachkot.
3. Ditto Landidak.
4. The Lashti taking out of the springs in the Tochi at Haved in the Bannu Tahsil.
5. The Zindai depending on springs on the right bank of the Gambila.
6. The Kurram canals on both right and left banks taking out of the Kurram below its junction with the Kashu Nalla.

There are also a few acres dependent on floods from the Gambila or irrigated by jhallars. These have, for reasons given elsewhere, been classed as nahri.

The table given in Appendix H shows the cropping under each system, 1904-05. The canals vary considerably in efficiency and further lands irrigated by private canals on which the canal owners levy a water rate cannot be assessed in the same way as zemindari or Government canals. The various systems can be graded in order of efficiency as follows:—

Class I.—Ghulam Muhammad Khan's canal.

Dauran Khan's canal.

Lashti.

Class II.—The remainder.

In class I the water is sweet and the supply is ample. In class II either the supply is limited or the water is brackish. In both cases the only satisfactory method of assessment is by means of fluctuating rates. It is not uncommon to find land irrigated from one canal system in one year taking water from another the next. As regards the private canals the area under irrigation is certain to extend. At the same time, though it is early yet to prophecy, there are signs that some of the best land will become water-logged and go out of cultivation. As regards the Kurram canals No. (6) land is continually going out of cultivation owing to the brine brought down by the Kashu. No system of fixed rates can be applied satisfactorily to a circle of this description.

Class I contains the private canals and the Lashti. Though equal in point of efficiency the same rates cannot be framed for these canals, as in one Government has to deal with both canal owners and landowners, in the other with landowners alone.

First as regards the Baran or private canals. The figures for 1904-1905 were—

Canal.	Cultivated area.	CROPPED.		Total cropped area.
		Rabi.	Kharif.	
	Acres.	Acres.	Acres.	Acres.
Dauran Khan's canal	5,633	4,669	2,041	6,710
Ghulam Muhammad Khan's canal	7,772	6,515	2,441	8,956
Total	13,405	11,184	4,482	15,666

Owing to recent extensions of these canals the figures for 1904-05 form a more satisfactory basis of assessment than the six years average used elsewhere and in the half-net assets estimate. A produce estimate, worked out on the above figures for the land irrigated by private canals, show the value of the gross produce to have been Rs. 2,29,000, viz., Dauran Khan's canal Rs. 96,180, Ghulam Muhammad Khan's canal Rs. 1,32,820. The method on which the produce is divided is as follows:—

The reapers take 5 per cent. of the crop before it is brought to the thrashing floor. The canal owners then take one-sixth of the gross produce and certain other dues which bring their share roughly up to one-fifth. Thus the actual receipts of the canal owners in 1904-05 were—

Canal owners.	Gross produce.	Less 5 per cent. reapers.	One-fifth or canal owner's share.
	Rs.	Rs.	Rs.
Dauran Khan	96,180	91,371	18,274
Ghulam Muhammad Khan	1,32,820	1,26,179	25,235
Total	2,29,000	2,17,550	43,509

In the circle half-net-assets estimate 5 per cent. of the gross produce has been deducted throughout for the upkeep of the canals. In this case the expenses of the canal owners are considerable and 5 per cent. of the gross produce or Rs. 11,450 must therefore be deducted from their receipts in order to ascertain their net profits. The cost of upkeep thus works out to 11 annas per acre matured and 13 annas per acre irrigated. In Shahpur the Hon'ble Mr. J. Wilson, c.s.i., estimated the upkeep of certain inundation canals to be 12 annas per acre matured and 10 annas per acre irrigated.

At this rate the net profits of the canal owners come to Rs. 13,465 per annum in the case of Dauran Khan and Rs. 18,594 in the case of Ghulam Muhammed Khan. Now the former is assessed to income-tax on an income of Rs. 9,000 per annum and the latter has leased his canal to a relation for Rs. 12,000 per annum. Income-tax assessments are almost invariably under-estimates and Dauran Khan's case is no exception to the rule. The income derived from this canal is certainly not less than Rs. 13,000. That the other canal owner is willing to surrender a part of his income to a relation is a factor that cannot be taken into consideration in assessment.

The total cropped area for 1904-1905 is 15,666 acres and the canal owner's net profits are Rs. 32,059, or roughly Rs. 2 per acre. In accordance with the principle of assessment laid down in the Punjab Minor Canals Act I propose to assess the canal owners to royalty at a fluctuating rate of 8 annas per acre cropped or one-fourth of their estimated net profits.

Next as to the revenue to be taken from the landowners. The following table gives the half-net assets on each crop after the deduction of kamiana and canal owners' dues :—

DETAIL.	Moth.			Maize.			Jowar.			Bajra.			Cotton.			Vegetables.			Other.		
	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.
Value per acre ...	7	8	0	15	2	0	10	2	0	12	0	0	15	0	0	10	0	0	8	0	0
After deducting kamins' dues at 9 per cent. and abiyana one-fifth.	5	7	4	11	1	0	7	5	4	8	11	9	10	14	8	7	4	4	5	13	2
Owner's share ...	2	6	5	4	13	11	3	8	8	3	13	6	4	12	10	3	3	2	2	9	0
Half-net assets ...	1	3	3	2	6	11	1	9	10	1	14	9	2	6	5	1	9	7	1	4	6
Percentage of cropped area ...	.02			25.72			.55			1.93			.33			.02			.04		

DETAIL.	Wheat.			Gram.			Barley.			Sorghum.			Tobacco.			Fodder crop.			Vegetables.			Other.		
	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.
Value per acre ...	16	10	0	13	0	0	11	8	0	12	0	0	15	0	0	8	0	0	10	0	0	8	0	0
After deducting kamins' dues at 9 per cent. and abiyana one-fifth.	12	1	7	9	7	5	8	5	10	8	11	9	10	14	8	5	13	2	7	4	4	5	13	2
Owner's share ...	5	5	2	4	2	8	3	10	6	3	13	6	4	12	10	2	9	0	3	3	2	2	9	0
Half-net assets ...	2	10	7	2	1	4	1	13	3	1	14	9	2	6	5	1	4	6	1	9	7	1	4	6
Percentage of cropped area.	50.24			.17			5.42			3.32			.06			6.54			...			5.64		

The landowners of this tract are the most wealthy in Marwat. In fact other Marwats are inclined to think prosperity has rather turned their heads. The present assessment is not so much an enhancement of previous revenue as a first assessment of the land in its irrigated aspect.

There is no reason to assess much below half-net assets, unless it be that the irrigators are harassed by the canal owner's underlings. From the table above it will be seen that wheat and maize occupy 76 per cent. of the total cropped area, and that the half-net assets of the former amount to Rs. 2-10-7 and of the latter to Rs. 2-6-11. I propose to divide the crops into two classes:—

Class I.—Wheat, maize, cotton, tobacco, gram, sugarcane, rice and turmeric.

Class II.—Jowar, bajra, vegetables, barley, oil-seeds, fodder, moth, mung, til, &c.

For class I I propose a fluctuating crop rate on the matured area of Rs. 2 per acre and for class II Re. 1-4 per acre. The probable revenue resulting from this arrangement is shown in the following table:—

Class.							Area matured, 1904-05.	Resultant revenue.
							Acres.	Rs.
Class I	...	...	...	...	...	...	11,988	23,976
" II	...	...	...	...	...	...	3,678	4,597
Total							15,666	28,573

In the same way receipts in the shape of royalty should average Rs. 7,833. The Lashti canal was classed with the private canals in order of efficiency. The gross value of the various crops is the same as that given in the table for the private canals, and it is only necessary to eliminate the deduction of one-fifth made for the canal owners' dues and substitute a deduction of 5 per cent. of the gross produce for the upkeep of the canal to arrive at half-net assets. But it is simpler to put the matter as follows. The canal owners' net profits on the private canals were said to be Rs. 2 per acre matured. This sum was assessed to royalty and not to land revenue. The half-net asset on the Lashti canal are thus between 7 and 8 annas an acre more than on the private canals. I propose to class the crops as in the case of the private canals, and assess class I at Rs. 2-8 an acre and class II at Re. 1-8 an acre.

The probable revenue resulting from this arrangement is shown in the following table:—

Class.							Area matured, 1904-05.	Resultant revenue.
							Acres.	Rs.
Class I	...	...	...	...	...	...	1,024	2,560
" II	...	...	...	...	...	...	255	382
Total							1,279	2,942

The remaining irrigated area of this circle and the cropping thereon is shown in the following table:—

Canal.					Cultivated area.	Kharif, 1904.	Rabi, 1905.	Total cropped area, 1904-05.
					Acres.	Acres.	Acres.	Acres.
Kachkot	...	...	...	...	3,881	574	3,655	4,229
Left bank, Kurram Canal	...	...	...	...	4,217	522	1,482	2,004
Right ditto	...	...	...	...	6,121	486	5,193	5,979
Zindai	...	...	...	...	307	16	262	278
Landidak	...	...	...	...	263	3	254	257
Jhallars	...	...	...	...	412	35	202	238
Saitab	...	...	...	...	25	...	20	20
Total					15,326	1,637	11,368	13,005

The area under the Kachkot and the Kurram canals thus forms 94 per cent. of the total. As to the Kachkot the upper reaches of the canal in the Nar Circle have been assessed at fixed rates which represent roughly Re. 1-9 per cropped acre. The efficiency of the tail of the canal in the Tandoba Circle is necessarily less than in the Nar, which is served first.

As regards the Kurram canals a cash rent has been quoted in Part V., which fairly represents the renting value of land irrigated from this source. The average annual value of the owner's share per cropped acre is Rs. 3-11: Re. 1-13 may therefore be taken as the limit of the Government demand. In the case of these canals there are more arguments for keeping below half-net assets than in the case of the land irrigated from private canals. The villages are poor and the people are encumbered by debt.

I propose to divide the crops into the same classes as on the private canals with one exception, *viz.*, rice will be placed in class II not class I. Rice is only sown to reclaim the land when it has become seriously affected by "kallar." The outturn is always poor and the landlord, in consideration of the improvement of the land, often foregoes his share of a rice crop.

For class I I propose a fluctuating rate of Re. 1-8 per acre matured and for class II Re. 1. The probable revenue resulting from these rates is shown in the following table:—

Class.						Area matured, 1901-05.	Resultant revenue.
						Acres.	Rs.
Class I	...	...	...	...	...	9,168	13,752
„ II	...	...	...	...	...	3,837	3,837
Total						13,005	17,589

The unirrigated lands of the circle lie chiefly on the left bank of the Kurram in the Marwat Thal. The crop rates, as brought out by the half-net assets statement, differ in no material way from those of the Shiga Circle, and I propose to adopt the rates therein proposed without alteration. It would lead to confusion were fluctuating and fixed rates employed in the same village. The average cropped area on unirrigated soils during the last six years has been 6,935 acres in the rabi and 628 acres in the kharif. At the rate of annas 8 per acre matured in kharif and annas 12 per acre matured in the rabi, the average Government receipts would come to Rs. 5,201 in the rabi and Rs. 314 in the kharif, or Rs. 5,515 in all. At the same time I ask leave in two or three villages where there is practically no irrigation to substitute a fixed assessment for a fluctuating one. The people prefer the old system, and in their case there is no reason why Government should not comply with their wishes. This will not affect the financial results in any way.

The above proposals should bring in exclusive of royalty a revenue as follows:—

	Rs.
(1). Private canals	28,573
(2). Lashiti	2,942
(3). Remaining irrigated area	17,589
(4). Unirrigated soil	5,515
Total	54,619

This represents 81 per cent. of half-net assets and an increase of 372 per cent. on the previous revenue. Such an enhancement may appear at first sight excessive; but the greater part of the enhancement is to come from the lands irrigated by the Baran canals, which are now for the first time being assessed in their irrigated aspect and which yield an outturn far superior to the lands on which the irrigated rates of the last Settlement were based.

The average cropping for the circle during the last six years has been 35,885 acres matured. The cropping 1904-05 has been 38,975 acres matured, or 8 per cent. above the average. It would, therefore, be safer to assume that the average annual revenue will be Rs. 50,250, but considering the recent extensions of the private canals and the probability of further extensions, I am inclined to think the average revenue will be more than Rs. 50,250 if it does not amount to Rs. 54,619.

57. The half-net assets of the Nar Circle and the resulting crop rates are—
Proposed assessment, Nar Circle.

Soils.					Average area of crops, 1899-1905.	Value of gross produce.	Half-net assets estimate.	Half-net assets crop rates.
					Acres.	Rs.	Rs.	Rs. a. p.
Nahri	...	...	...	...	11,847	1,27,406	27,392	2 5 0
Shiga	...	...	...	...	1,469	9,170	2,063	1 5 11
Total					13,316	1,36,576	29,455	...

The revenue assessed in this circle at the last Settlement amounted to Rs. 6,880, of which Rs. 423 were assigned. The incidence of the revenue at the time of last Settlement was Re. 0-10-5 per cultivated acre and is now only Re. 0-7-5 per cultivated acre. In a circle where 86.56 per cent. of the cultivated area is irrigated a very large increase on these rates may be expected.

89.63 per cent. of the cultivated area is now recorded as bearing a crop every year, and the percentage of crops which fail to the area sown is given as 11.70. This is no doubt fairly correct as regards the irrigated lands. The percentage of failure on the shiga soil has been shown in Part III to be underestimated, and consequently the assessment of the Shiga lands must be more lenient in proportion than the assessment of nahri lands.

During the last thirty years the irrigated area under cultivation has increased by 36.6 and the unirrigated area by 84 per cent. Most of this land was brought under cultivation very shortly after the conclusion of the last Settlement and the owners have had the benefit of the crops on these lands revenue-free for over twenty years. With improvement of irrigation there is room for an expansion of cultivation up to 3,000 acres, but under the present system there is little prospect of any further expansion. The chief crops are wheat (54.7 per cent.), maize (19.3 per cent.), barley (7 per cent.) and gram (8.3 per cent.). The population per square mile of cultivation is 393. Whole villages belong to one man or one family. The percentage of the cultivated area cultivated by the owners themselves is only 23.94.

Of the cultivated area 15.4 per cent. has been mortgaged. During the last seven years the average mortgage money has been Rs. 66 per acre. Of the area now mortgaged 1,598 acres are mortgaged to zemindars and 1,036 acres to money-lenders. 17.45 per cent. of the cultivated area has been sold since the last Settlement, of which about half has come into the hands of money-lenders. The average price of land during the last seven years has been Rs. 108 per cultivated acre, or 166 times the average rate per cultivated acre of the last Settlement.

Thus everything points to a considerable enhancement of the revenue. The increase in the cultivated area since last Settlement has been 40.6 per cent. The general rise in prices since 1878 has been 59 per cent. The circle is near to the Bannu market and secure from famine; the pressure of population on the soil is inconsiderable, and the holdings are large. The selling price of the land, as compared with the revenue, indicates how light is the incidence of the last assessment. As a matter of fact Mr. Thorburn only took 63 per cent. of half-net assets on the ground that the estates were but lately formed and were held by Government grantees. Doubtless the initial expenditure in colonizing the grants and paying for masonry outlet heads was very considerable; but thirty years of a light assessment is as much consideration as the grantees can fairly expect. The produce estimate yields half-net assets 328 per cent. above the present revenue. Such an enhancement of revenue, as is represented by the difference between

the half-net assets and the present assessment, would be out of the question in this circle; but apart from the magnitude of the increase brought out by these figures, there are very strong arguments against assessing up to half-net assets. The calculation of the half-net assets from the produce estimate is based on the landlord receiving 43 per cent. of the gross produce on irrigated and 45 per cent. on unirrigated land. It is true that a resident and careful landlord will get his full share of the produce, or nearly Rs. 5 per cultivated acre, and I know men who do so. But in the chapter on rents I have shown that many landlords do not get their full share of the produce, and even in good villages lease their lands at from Rs. 3-5 to Rs. 4 per acre. Considering the circumstances of the tract, the number of absentee landlords, the dishonesty of the tenants and the expense and difficulty of management, I place more reliance on the cash and mixed rents I have quoted than I do on the half-net assets based on the produce estimate.

Even in villages with perennial water the landlord's share is often not more than Rs. 4 per cultivated acre and sometimes not more than Rs. 3-5. In villages which have only "afzud" or "chilma" water the value of the cultivated acre is considerably less. The Shiga lands of the circle are among the worst in Marwat. Accordingly I propose to assess the circle at Rs. 20,000, which represents 68 per cent. of the half-net assets and an increase of 191 per cent. on the present revenue. This sum in my opinion represents in reality a much higher fraction of half the landlord's receipts than 68 per cent., but I refer to the half-net assets brought out by the produce estimate.

The results of this proposal are summarised in the following table:—

SOIL.	Half-net assets crop rates.	Half-net assets crop rate reduced to 68 per cent.	Cropped area.	Resultant revenue.	Cultivated area.	Arithmetical soil rates.	Proposed soil rates.	Proposed revenue.	Last Settlement rates.
	Rs. a. p.	Rs. a. p.	Acres.	Rs.	Acres.	Rs. a. p.	Rs. a. p.	Rs.	Rs. a. p.
Nabri	2 5 0	1 9 2	11,847	18,634	12,859	1 7 2	1 7 6	18,886	0 12 0 0 8 0
Shiga	1 5 11	0 14 11	1,469	1,369	1,997	0 10 11	0 8 0	998	0 3 0
Total ... ..	...	...	...	...	...	...	...	19,884	...

It will be seen that I have proposed a lump wet and dry assessment for irrigated lands in this circle. This is the system to which the people are accustomed and for which they have expressed a strong preference. So long as the present method of irrigation continues there is no reason to introduce a change. In Chapter VIII I have given my proposals as to the course to be adopted in the event of Government taking over the Bannu Canals.

Summary of rates proposed, 58. The following tables give a summary of the crop and soil rates now proposed for sanction:—

FIXED ASSESSMENT CROP RATES.

SOIL.					Shiga.	Gadwad.	Nar.
					Rs. a. p.	Rs. a. p.	Rs. a. p.
Nabri	...	...	...	...	...	...	1 9 2
Rodkahi	...	...	...	...	0 12 0	1 5 4	...
Barani	...	...	...	...	0 11 10	0 13 10	...
Shiga Khatina	...	...	...	...	0 15 5	1 1 9	...
Shiga	...	...	...	...	0 12 5	0 14 6	0 14 11
Average incidence	...	...	...	...	0 12 8	1 0 0	1 3 0
Resultant revenue	...	...	...	...	95,146 0 0	45,065 0 0	20,003 0 0

SOIL RATES.

Soil.					Shiga.	Gadwad.	Nar.
					Rs. a. p.	Rs. a. p.	Rs. a. p.
Nabri	...	...	...	...	...	...	1 7 6
Rodkahi	...	...	...	...	0 6 0	0 10 0	...
Barani	...	...	...	...	0 4 0	0 4 0	...
Shiga Khatina	...	...	...	...	0 12 0	0 12 0	...
Shiga	...	...	...	...	0 8 3	0 8 3	0 8 0
Average incidence	...	...	...	...	0 8 4	0 7 4	1 5 0
Resultant revenue	...	...	...	...	95,604 0 0	46,077 0 0	19,884 0 0

FLUCTUATING ASSESSMENT RATES.

CIRCLE.				1st class.	2nd class.	3rd class.	4th class.	5th class.	6th class.	7th class.	8th class.	Resultant revenue.
				Rs. a.	Rs.	Rs. a.	Rs. a.	Rs. a.	Rs.	As.	As.	Rs.
Shiga	1 2	...	12	8	1,14,436
Gadwad	2	1 2	...	12	...	53,049
Tandoba	2 8	2	1 8	1 4	...	1	12	8	54,619



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PART VIII.—FINANCIAL RESULTS AND MISCELLANEOUS.

59. The financial results of the proposed assessments are given in the following table :—

Results of the assessments.

CIRCLE.	Last Settlement jama.	Proposed jama.	Enhancement.	Percentage of enhancement.
Shiga	59,070	95,000	35,930	60
Gadwad	35,995	45,000	9,005	25
Tandoba	11,568	54,619	43,051	372
Nar	6,880	20,000	13,120	191
Tahsil	113,513	214,619	101,106	89

With royalty estimated to bring in Rs. 7,833 per annum the total demand will be Rs. 2,22,452 or nearly double the previous demand. In the forecast report Mr. Donald put the increase at 90 per cent, an estimate which the Settlement Commissioner reduced to 50 per cent. In the barani circles I have kept within the Settlement Commissioner's estimate. The circumstances of the irrigated circles were not fully appreciated when the forecast report was written and in my opinion they fully justify the enhancement of revenue I have proposed.

60. The enhancement of revenue involved in my proposals has been in many cases very great. In accordance with the Resolution of 16th

Progressive assessment.

January 1902 on the land revenue policy of the Indian Government, the land owners should be given some time to adjust their expenditure to their reduced incomes. In the Shiga Circle the Thal villages now paying Rs. 5,900 will pay under the new assessment Rs. 27,000 per annum, an increase of over 300 per cent. I propose to defer the payment of Rs. 13,500 or half this sum for five years. In the Gadwad Circle there is no reason to defer the realization of the full demand. In the Tandoba Circle the percentage of increase is the highest in the tahsil. It is unusual to defer the full realization of a fluctuating assessment, but in this case the percentage of increase is so high that I propose to take only two-thirds of full rates for the first five years. In Nar the percentage of increase is a high one and the revenue payers are in this case landlords living on their rents and therefore less able to support such an enhancement than peasant proprietors. Accordingly I propose to defer Rs. 8,000 of the demand for five years.

61. My proposals include a lump wet assessment for both the Nar and Tandoba Circles, the former at fixed and the latter at fluctuating rates.

Changes in irrigation system.

In the event of the Irrigation Department taking over the management of the Bannu Canals, these assessments will become inappropriate. In the same way if land now assessed at barani rates or waste land on which no assessment has been imposed come under irrigation, the revenue arrangements will require revision.

No estimate can as yet be formed as to the standard of efficiency the canals will attain under State management or the price Government may think fit to charge for canal water. It may be presumed that the charge for canal water will be in the form of occupier's rate differentiated on the crops. How Government will take its share of the enhanced profits of the landlords due to improvement or extensions of canals is not so certain. The occupier's rate may be pitched so high as to bring about a reduction of rents or a nabri-parta may be imposed as on the Swat Canal, i. e., a fixed assessment added to the ordinary land revenue in consideration of the advantages of the land's being irrigable from a canal. However it is as yet unnecessary to decide this question, and I propose to defer further discussion on the subject until the assessment of the Bannu Tahsil is complete. All that is necessary at present

is to leave the way clear for any change that may take place. In the event of Government taking over the irrigation system of the Bannu District my proposals for the Marwat Tahsil are as follows :—

- (1). That the assessment of irrigated lands proposed for the Tandoba and Nar Circles be abandoned in favour of a dry fixed assessment of four annas an acre, the average barani rate on similar soils throughout the tahsil.
- (2). That in the event of land already assessed at barani rates coming under cultivation, the barani rates be abandoned and a uniform rate of four annas adopted. This proposal at first sight may seem somewhat curious. My reasons in this case are that owners' rates and "nahri-partas" are in disfavour and the future assessment of the Bannu canals will probably be in the form of dry rates plus the occupier's rate. Presumably the occupier's rate will be the same throughout the district: even if the zone system be adopted the occupier's rate will not be differentiated to the class of soil in every village. At present the average barani rate on sandy soils is over 8 annas an acre, while on stiff soils it is only 4 annas. This represents the value of the land in its unirrigated aspect. But if both are irrigated the stiff soils will yield a better outturn than the sandy soils, and the relative values of the two will be completely reversed. Thus if the barani rates were retained, under the new system the best land would be paying 4 annas land revenue plus occupier's rate and the worst 8 annas land revenue plus occupier's rate. It is to avoid this anomaly that I am proposing an all-round rate of 4 annas an acre.
3. That in the event of waste land coming under cultivation 4 annas an acre be adopted as the dry assessment. The gain to land revenue under this head will go some way to balance the loss of land revenue involved in the assessment of sandy soils at 4 annas an acre.
62. In the barani circles water is too far from the surface for well irrigation and in the irrigated circles wells are unnecessary. I have therefore no proposals to make for protective leases in this tahsil.

Assessment of Mills.

63. The assessment of mills will be taken up for the district as a whole.

Cesses.

64. The cesses levied at present are—

							Rs.	a.	p.
Local rate	...	...	...	...	...	...	8	5	4
Patwar cess	...	...	...	...	...	...	6	4	0
Lambardari	...	...	...	...	...	...	5	0	0
Total							19	9	4

No change is proposed in the local rate or lambardari cess. In Kohat and Hazara the Patwar cess has been raised to Rs. 6-7-4. The staff of Patwaris will have to be increased in Marwat, and accordingly I propose to adopt Rs. 6-7-4 as in Kohat and Hazara for the Patwar cess. This will cover the increase of the Patwaristaff and pay the Kanungo establishment. The cesses will thus be—

							Rs.	a.	p.
Local rate	...	...	...	...	...	...	8	5	4
Patwar cess	...	...	...	...	...	...	6	7	4
Lambardari cess	...	...	...	...	...	...	5	0	0
Total							19	12	8

Rupees 19-12-8 is equivalent to Re. 0-3-2 in the rupee, a convenient fraction in collection.

On lands irrigated by the Kachkot, a canal cess of 5 per cent. has been levied to pay the establishment, cost of material for the dam, &c. The present 5 per cent. does not cover the whole expenditure under this head, but with the increase of revenue some reduction of the cess will be possible. I am deferring my proposals as to this cess until the assessment of the Bannu Tahsil is completed.

65. The current assessment of the whole tahsil will not expire till Rabi 1907. The new assessment should therefore come into force on the expiry of the old with Kharif 1907.

The term of the new Settlement should be for twenty years, subject to the conditions set out in para. 61.

66. The present revenue is payable in instalments on the following dates:—

Instalments.
Kharif The 15th December and the 15th January.
Rabi The 1st July and the 1st August.

So much revenue is due in the rabi and the wheat is often harvested so late that it would be a hardship to require full payment of the demand before the 1st August. At the same time the Marwat is so dilatory in the payment of his revenue, that if no pressure is put on him till the 1st August the collections will invariably be very late and will probably be attended with difficulty. I therefore propose to retain the dates fixed for the rabi instalments.

In the kharif the girdawari begins on the 15th October. Every year papers have to be prepared relating to suspensions and the collection of suspended revenue in the Gadwad Circle. The Revenue Commissioner's sanction has to be obtained to such proposals before the Dhal bach is prepared. The corrected bach papers should be in the hands of lambardars at least four weeks before the first instalment is due. It is difficult to arrange for the punctual disposal of all these matters by the 15th December. In the Nar and Tandoba Circles the maize is often not harvested till the last week in November and the time given to the zemindar to dispose of his crop is therefore in some cases insufficient. I propose to fix one date for the kharif harvest, viz., the 15th January. Patwaris should make over the bach papers to the lambardars not later than the 1st June and the 15th December.

The dates will thus be—

Rabi The 1st July and the 1st August.
Kharif The 15th January.

67. Since the separation of the North-West Frontier Province from the Punjab, the following sums have been advanced to agriculturists of the Marwat Tahsil:—

YEAR.	Land Improvements Loans Act, XIX of 1883.	Agriculturists' Loans Act, XII of 1884.
1901-02 ... ..	...	5,400
1902-03	400	5,700
1903-04 ... ..	...	8,050
1904-05	600	14,618

Not much can be done in the way of land improvement in Marwat and the demand for loans under Act XIX of 1883 will therefore never be brisk, but in bad years too much money cannot be advanced for the purchase of cattle and seed, provided of course that there is adequate supervision of the distribution. A start has been made with an agricultural bank at Lakki, but I do not myself

think that co-operation will solve the credit problem at any rate in the near future. Marwat wants more primary education, more men who understand simple arithmetic before Co-operative Credit Societies can take root. For the present Government must be the zemindar's banker in times of distress and ample funds should be made available after the failure of any harvest.

Matters on which orders are asked for.

68. Orders are solicited on the following points :—

- (1). The system of assessment described in paragraph 52.
- (2). The fixed and fluctuating rates detailed in paragraph 58.
- (3). The cesses proposed in paragraph 64.
- (4). The introduction and term of Settlement (paragraph 65).
- (5). The dry rates proposed in paragraph 61.
- (6). The instalments in paragraph 66.
- (7). The proposals to defer payment of full assessment (paragraph 60).

BANNU :

The 14th October 1905.

R. I. R. GLANCY, I.C.S.,

Settlement Officer, Bannu.



GLOSSARY OF VERNACULAR WORDS.

ADYANA	... A water rate levied by private canal owners in return for irrigation.
AFZUD	... Water flowing from 1st December to 1st June.
ADNA MALIK	... Inferior owner.
BAJRA	... A kind of Millet (<i>Pennisetum Thphodeurn</i>).
BARANI	... Dependent on Rainfall.
BANJAR JADID	... New fallow.
BANJAR KADIM	... Old fallow.
BAND	... A Dam.
BATAI	... Rent taken by division of crops.
BHAYACHARA	... A tenure in which possession determines the measure of each proprietor's right.
CHILMA	... Surplus or spill water.
CHAKBUT	... Applied to a sub-division or estate the lands of which are made up of chaks or blocks in the same thakbast as those of one or more other estates or sub-divisions.
DAGAR	... Land receiving drainage from upper lands.
DADAH	... A fixed share.
GIRDAWARI	... Harvest inspection.
GHI	... Clarified butter.
ISAB GOI	... <i>Plantago ovatu</i> .
JAMA	... Land Revenue demand.
JHALLAR	... A wheel by which water is raised from a stream or canal.
JHALLARI	... Irrigated by jhallar.
JOWAR	... A kind of millet (<i>Sorghum Vulgare</i>).
JALUNS	... Water skins.
JINSWAR	... Crop statement.
KHETBUT	... Applied to a sub-division or estate the fields of which are mixed up with the fields of one or more other estates or sub-divisions in the same thakbast.
KASHA	... Canal labourer.
KASHA JARA	... Canal labourers' dues.
KAMIN	... A village menial.
KAMIANA	... Menials' dues.
KALLAR...	... Land affected by saline efflorescence.
KHALSA	... Revenue credited to Government.
KANAL	... A measure of land one-eighth of an acre.
KHARABA	... Failed crops.
KHARIF	... Autumn harvest.
KHAM TAHSIL	... Direct management of estate by Government.
LAMBARDAR	... A village headman.
MUNG	... <i>Phaseolus mungo</i> .
MOTH	... <i>Phaseolus aconitifolius</i> .
MUAFI	... Revenue free.
NAHRI EKASLI	... Land yielding less than six crops in eight harvests.
NAHRI DOKASLI	... Land yielding more than six crops in eight harvests.
PAINA	... Land lower down with reference to supply of water (opposed to SAROBA.)
PATTIDARI	... A form of tenure in which customary or ancestral shares are the measure of proprietary rights.
PARTA	... Assessment rate.
PATEAI	... A kind of poll tax.
RODKOHI	... Land irrigated by hill torrents.
RABI	... Spring harvest.
SAILAS	... Flooded by river.
SHIGGA	... Sand—a class of soil and an assessment circle.
SHIGGA KHATINA	... Sand and clay mixed (a class of soil).
SAROBA	... Higher lying land with reference to water supply—opposed to (Paina.)
SHAFTALA	... A fodder crop.
SARSHAF	... Rape (<i>Bruca Sativa</i>).
SAHUKAR	... A money-lender.
TARAF	... A sub-division of an estate.
TAKAYI	... Loan granted by Government to an agriculturist for agricultural purposes.
THAKBAST	... A map showing the boundaries of one or more estates.
TIL	... Sesamum.
TARADDI	... Land prepared for crop at the next harvest.
TUKHAM MALANG	... A herb used in flavouring sherbat.
USHAS	... Camel graziers.
VESH	... A tribal partition of land.
ZABTI	... A cash rent levied on account of certain crops.
ZIATOB	... Any additional sum raised by mortgagor on his mortgaged land.
ZAMINDARI	... A tenure when land is owned by single proprietor or a number of proprietors in common.